Mortality Statistics of Insured Wage-Earners and Their Families

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MORTALITY STATISTICS OF INSURED WAGE-EARNERS AND THEIR FAMILIES

EXPERIENCE OF THE METROPOLITAN LIFE INSURANCE COMPANY INDUSTRIAL DEPARTMENT, 1911 TO 1916, IN THE UNITED STATES AND CANADA

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NEW YORK
Metropolitan Life Insurance Company
1919

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To

HALEY FISKE, Esq.

PRESIDENT
METROPOLITAN LIFE INSURANCE COMPANY

whose broad vision of the aims and
purposes of Industrial Insurance
inspired the produc-
tion of this
work.

PREFACE.

It has been one of the major activities of the Statistical Bureau of the Metropolitan Life Insurance Company to compile the medical statistics of mortality among policyholders of the Industrial Department. After seven years' work, data are available in considerable detail for the many millions of policyholders who constitute its membership. In fact, nearly fifty million years of life and more than 635,000 deaths are represented in the period 1911 to 1916 covered in this report. The volume is an analysis of this material and is submitted as a contribution by the Company to the public health movement in the United States and Canada.

Facts herein compiled have already had wide public uses. From time to time, reports have been issued in scientific and medical journals on various diseases and conditions. A large part of the whole field of mortality statistics has been considered and a mass of important scientific information has been put into circulation. The completeness and accuracy of the data have commended the studies to physicians and others who are guided in their work by medical statistics.

The present volume is, however, more than a compilation of the papers and reports which have appeared in recent years. The previous discussions have been much amplified and much new information has been added. The report is, in fact, a comprehensive treatment of the entire field of mortality as related to wage earners and their families.

This work should serve as a supplement to general population mortality statistics as published by the Bureau of the Census and by the several State and municipal registration offices. Large areas of the country still outside the Registration Area of the United States are included in the insurance field and for these sections there are as yet no authentic compilations of mortality statistics. This report also contrasts the mortality experience of wage earners and of the general population. The medical profession especially will profit from the study of the individual diseases with their detail of death rates by color, sex and age period. In some cases, the figures will suggest new lines of medical research.

It is appropriate that the insurance companies should contribute to the advance of medical science and to the public health movement. The extensive health work carried on by the Metropolitan demands that a specific answer be given to the many persons who are interested to know what the effect of the life conservation programme has been on the mortality experience of policyholders. Health and social workers all over the country are awaiting a report, showing the extent of the mortality saving among insured lives and the diseases and conditions which have been most affected.

In presenting this volume to the public, the author desires to acknowledge how completely this and other scientific contributions from the Statistical Bureau are the result of the continued cooperation and encouragement of the executives of the Company. To Dr. Lee K. Frankel, Third Vice President, his obligation is especially great for the many suggestions concerning the development of the Bureau's work. It is appropriate also that proper acknowledgment be made to the medical profession of the United States and Canada. About thirty-five thousand letters from thousands of physicians have materially helped to complete and clarify the medical data in obscure cases. Finally, it is a pleasure to acknowledge the loyal and effective assistance received throughout the progress of this work from Mr. Edwin W. Kopf, Assistant Statistician, and from Mr. George H. Van Buren, Supervisor, both of whom I am honored to have associated with me in this publication.

LOUIS I. DUBLIN.

Sept. 12, 1918.

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MORTALITY STATISTICS OF INSURED WAGE EARNERS AND THEIR FAMILIES IN THE UNITED STATES AND CANADA.

CHAPTER I.

INTRODUCTORY.

Public Health and Social Data of the Industrial Population.

This report is presented as a contribution to the facts on the vitality of American wage earners. The great Metropolitan family of ten million policyholders is, more than any group for whom data are available, typical of our industrial population. The policyholders are bound together by many ties which justify and add interest to a presentation of the facts of their mortality. This report is intended, however, to be more than a compilation of death rates. It is hoped that it will serve as a contribution to the public health and social welfare movements of recent years. The six year period covered by the report, 1911 to 1916 inclusive, is coincident with the period during which a wide programme of life conservation has been developed by the Company for its policyholders. Education in personal and civic hygiene, the care of the sick by visiting nurses and a number of other activities have been put into operation to improve the health of this large body of insured men, women and children. The facts which will be presented should, therefore, show what has been achieved through this programme and what still remains to be done in checking preventable sickness and premature death. Experience has proved that the ever broadening movement for life conservation must rest upon a firm foundation of well established facts.

Area Covered by These Data.

These data are of interest and value to public health and social workers because they are comprehensive. They relate to an area which includes nearly all the states of the United States and the provinces of Canada. The statistics, therefore, reflect the sanitary and social conditions prevailing throughout the industrial population of two great national units. The only states not included in this experience are Mississippi, North and South Dakota, Wyoming, Colorado, Texas, Nevada, Arizona and New Mexico. It should be remembered that even in these states reside a considerable number of policyholders who transact their business by correspondence with the Home Office of the Company in New York City. It may be said, therefore, that the figures are truly representative of the entire wage earning population of the United States and Canada. The geographic range of the data is much broader than that of the Registration Area established by the United States Bureau of the Census for the collection of mortality statistics of the general population of the United States. A large proportion of the insured wage earners reside in the so-called non-registration area and the facts for them will be included in our compilation. The importance of this will be brought out in some detail in the discussion of some diseases and conditions whose incidence is confined very largely to certain sections of the country where state-wide registration of mortality does not as yet exist. In fact, the data for insured wage earners presented herein will for some time remain the only authentic compilation of mortality for these areas.

Wide Range of Occupations among Insured Wage Earners.

The facts presented in this report are unique also because they present for the first time a connected and detailed analysis of the facts of mortality among the industrial workers of the country. All the important industries and occupations are represented. Laborers form the largest single group, followed by teamsters, drivers and chauffeurs, by machinists, by textile mill operatives, by clerks and office assistants in the order named. In fact, all the more skilled industrial workers are represented, and in a proportion not very different from that found among occupied persons in the general population. The diversity of occupations among white males in this mortality experience will be seen by referring to page 87, of Bulletin 207, United States Bureau of Labor Statistics, March, 1917. This document displays the occupational mortality experience of the Industrial Department of this Company, according to principal causes of death.

Women and Children in Wage Earners' Families.

The members of wage earners' families are also accounted for in good measure in this collection of data. A very large proportion of the total number of persons observed are the wives and children of wage workers. In this respect, it is believed that this study presents for the first time a discussion of the facts of mortality among women and children of the wage earning groups of the American population. We shall see later in our discussion of the age characteristics of this group of insured persons that a fairly close correspondence with the age distribution of the general population is maintained for a considerable span of life.

Although all the statistics which follow include the women and children in wage earners' families, reference is usually made to the group as that of insured wage earners, the full title being thus abbreviated for simplicity.

Mortality Data of the White and Colored Races.

The facts also display the mortality characteristics of both the white and colored races among the insured wage earning population. These facts of comparative mortality, considered according to sex and age, are practically unavailable in any official vital statistics for the general population. Such comparisons between the mortality of the white and colored races as do exist have been based upon figures which included *all* classes of the white population on the one hand and *all* classes of the colored population on the other. For purposes of determining race characteristics of mortality, these comparisons are invalid because of the sharply different environmental circumstances of the groups. The colored race in the United States, especially in urban centers of population, suffers sanitary and other social disabilities which must be discounted before fair comparisons of colored with white mortality can be made. When the statistics of white and colored *wage earners* are compared, however, much of the objection to the usual figures for white and colored mortality is removed. The insurance data have the further advantage that the number of colored persons is large, covering all urban areas in the North as well as in the South. The data are also representative of both sexes and of all ages of colored persons exclusive of infants.

Number and Composition of the Insured Group as to Color, Sex and Age.

This widely distributed and representative group of wage earners contributed very nearly 54,000,000 years of life for observation in the mortality experience of the period 1911 to 1916. Of this number, more than 47,000,000 years of life, or 87.5%, pertained to white policyholders and nearly 6,700,000, or 12.5%, to colored policyholders. It is evident that there was a sufficient number of lives exposed in this inquiry to warrant drawing reliable conclusions. This mass of data, considered in relation to its wide geographic distribution, its special application to the wage earning group of the population, its substantial characteristics as to color, sex and age classes, and the completeness of the registration of the facts is, in our opinion, unparalleled in the history of American vital statistics.

The following table gives the color and sex characteristics of the data:

TABLE 1.

NUMBER AND PERCENTAGE OF POLICYHOLDERS, 1911 TO 1916. CLASSIFIED BY COLOR AND BY SEX.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Color and Sex.	Number.	Percentage.
Total	53,796,547*	100.0
White	47,098,458	87.5
Male	21,389,717	39.8
Female	25,708,741	47.8
Colored	6,698,089	12.5
Male	3,051,956	5.7
Female	3,646,133	6.8

* Strictly speaking, these represent years of life exposed during the six year period and not so many different persons. The method employed to obtain this figure from the number of policies in force will be explained on page 8.

Very nearly one-half of the total, (47.8 per cent.) were white females. The proportions of the white and the colored, respectively, in this group of policyholders, are different from those found in the general population of the Registration Area for deaths in the

United States. The proportion of negroes represented in this investigation is nearly three times that found in the expanding Registration Area of the United States. For the latter area, over the period 1910 to 1915, 4.6 per cent. of the total estimated population was of negro extraction. This variation in our data is due primarily to the choice of localities in which the Company conducts industrial life insurance business. It has been thought desirable, therefore, to confine our comparisons in the later sections of this report to specific race, sex and age classes and not to discuss to any great extent the aggregate results of both white and colored mortality experiences.

Age Constitution of the Insurance Experience.

The age composition of the group of policyholders observed in this mortality investigation is also of interest, especially when it is desired to make comparison of our data with those for the general population. In the following table we present a comparison of the percentage of policyholders and of estimated population in the several age classes. The matter of color distinction is not of basic importance in this discussion of age distribution and the data are

TABLE 2.

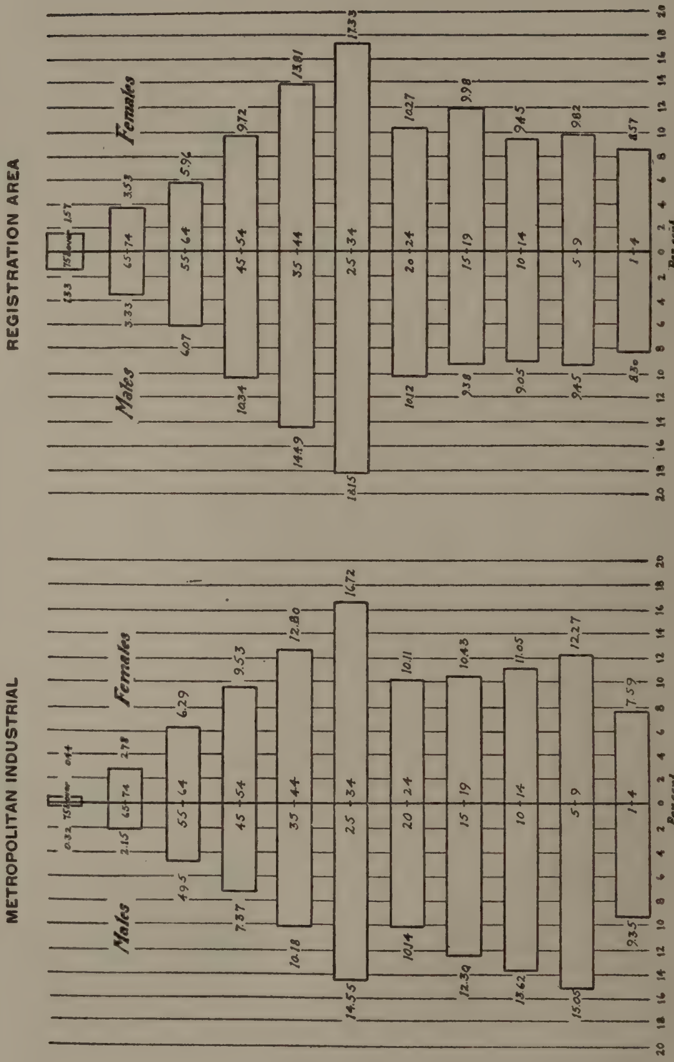
PERCENTAGE DISTRIBUTION OF ESTIMATED NUMBER OF POLICYHOLDERS CLASSIFIED BY AGE PERIOD FOR EACH SEX.

Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916, and Estimated Population of Expanding Registration Area of the United States, 1910 to 1915.

Age Period.	Males.		Females.	
	M. L. I. Co., 1911 to 1916.	Reg. Area, 1910 to 1915.	M. L. I. Co., 1911 to 1916.	Reg. Area, 1910 to 1915.
All ages—one and over	100.00	100.00	100.00	100.00
1 to 4........	9.35	8.30	7.59	8.57
5 to 9........	15.05	9.45	12.27	9.82
10 to 14.......	13.62	9.05	11.05	9.45
15 to 19.......	12.30	9.38	10.43	9.98
20 to 24.......	10.14	10.12	10.11	10.27
25 to 34.......	14.55	18.15	16.72	17.33
35 to 44.......	10.18	14.49	12.80	13.81
45 to 54.......	7.37	10.34	9.53	9.72
55 to 64.......	4.95	6.07	6.29	5.96
65 to 74.......	2.15	3.33	2.78	3.53
75 and over....	.32	1.33	.44	1.57

Chart I.—Percentage of Persons of Each Sex Group in Specified Age Class

Metropolitan Industrial Department, 1911 to 1916, and Registration Area, United States, 1910 to 1915, Compared



accordingly presented, in this particular instance, by sex only, for all classes of insured persons combined and for all race groups of the general population in the Registration Area of the United States.

Comparisons are confined to ages one year and over because no children under one year of age are included in the insurance experience. In the foregoing table we find a considerably larger bulk of both males and females under twenty years of age in the insurance experience than in the general population experience. In the population group, we find a slightly greater representation of women at the child-bearing ages than among the insured females. The main working period of life contains a larger representation of males of the general population than of males in the insured group.

The graph on page 6 shows the tendency of the population group to bulk more heavily in the later ages of life. Together with Table 2, it emphasizes the necessity for considering age and sex distinctions in analyzing the experience of the two groups. Comparisons between the population and insurance experience can be made with safety only when the higher average age of the population group is discounted by confining such comparisons strictly to similar age and sex classes.

Composition with Respect to Other Factors.

The composition of the group of policyholders with respect to nativity, parentage and other factors which materially affect a mortality experience, is also different for this group of insured wage earners than for the general population. There are no figures available at the present time to indicate the precise proportions of native and foreign born persons nor of the number of persons of the several foreign white race stocks among the insured. It is not possible, therefore, to say how much our figures are affected by the single factor of nationality or by the racial mortality characteristics of the foreign white stocks in our experience. It should be borne in mind that these policyholders reside almost altogether in cities and towns and therefore have all the characteristics of an urban population.

Technical Processes of Compiling the Data.

The foregoing comment has described briefly the broader characteristics of our data—their scope and application to the study of the public health problems affecting the wage earning population. In order better to understand the exposition of the detailed data in the report, it will be well to view in summary the chief technical processes employed.

Estimating the Number of Policyholders Exposed to Risk.

The registers of an industrial life insurance company do not show the number of separate persons exposed to risk. The accounts of mortality are in everyday actuarial practice related only to the policy exposure. Industrial insurance medical statistics, however, require that a reliable estimate of the number of separate persons, or the years of life exposed, be prepared. We may say briefly that this estimate of the number of years of life exposed to risk according to the several color, sex and age classes of the data was prepared on the assumption that the ratio in each of these classes of the number of claims paid to the number of decedents involved in these claims was the same as the number of policies outstanding to the number of lives insured. From the tabulation of the number of deaths and the number of claims according to color, sex and age classes these ratios were prepared. They were applied to the mean numbers of policies outstanding in each of the calendar years of this experience and the number of years of life exposed to risk was thus estimated for the entire six-year experience.

Classifying and Tabulating the Data for Deaths.

The preparation of the data from the primary records of the claims paid in the Industrial Department involved a number of technical processes. The accuracy and planning of these matters of office practice have an important bearing upon the value of the conclusions to be drawn from the tabular material displayed in this report. A brief discussion of these processes follows:

All of the necessary records in connection with each claim were examined and the items which it was desired to consider in the tabulation of the statistics were abstracted upon so-called "transcript sheets," each line containing the necessary information for a single claim. Some of the facts, such as age, amount of insurance and other strictly numerical data, were directly copied upon the line corresponding to the particular claim document. Other items such as the disease causing death, the occupation, place of birth, etc., were first classified in terms of numerical symbols and then copied upon the transcript sheets. The final product of this transcribing and classification process, for each claim, is a single line of numerical symbols, the meaning of which can be interpreted according to a previously arranged coding system. Ages were recorded in this investigation according to the age at the nearest birthday. The symbols for color and sex of the deceased presented no problems worthy of mention. The diseases causing death and the occupations of the deceased, however, were classified only through the exercise of extreme care in the examination of the claim papers and only after the full requirements of standard systems of nomenclature and classification in each of these chief subjects had been complied with.

Classification of Diseases Causing Death

The system of nomenclature and classification employed in arriving at numerical designations for use in this analysis of wage earners' mortality experience was the excellent "International List of Causes of Death." The requirements of this well known and widely accepted system of preparing statistical data of diseases were followed out in every important respect. Where two or more diseases or conditions were reported by physicians on the death certificate, assignment of the death to one particular disease or condition was made according to the rules laid down in the Classification Manual and to certain general rules of selective classification procedure authorized by the United States Bureau of the Census, Division of Vital Statistics.

Classification of Occupations.

Occupations of deceased persons were recorded generally in satisfactory detail upon the Company's forms for the reporting of deaths. This permitted us to compile fairly precise information on the occupational aspects of this mortality experience. The occupations were classified in accordance with the rulings of the "Classified Index to Occupations" issued by the United States Bureau of the Census in 1910. The full list of occupation titles given in this official index was not used. The list of titles was in fact limited to a certain number of occupations in the leading industries which were of interest either because of the number of deaths reported in them annually, or because of some special feature of hazard or hygiene. It is believed that much time and unnecessary work were thus saved in the tabulation and interpretation of the material. No detailed occupation data are given in this report, but the full account of the mortality experience of the Industrial Department of this Company according to the occupations of deceased persons over the years 1911 to 1913 was rendered in Bulletin No. 207 of the United States Bureau of Labor Statistics quoted in another section of this report.

Tabulating the Data from Perforated Cards.

The material of this study was tabulated by machine processes which necessitated the use of perforated tabulating cards. It is necessary to say only that the information on each claim was transferred from the transcript sheets mentioned above to the tabulating cards by means of Hollerith Punching Machines. For purposes of accuracy the information on each claim was perforated in duplicate, first upon a buff card, then upon a red card. The buff and red cards for each claim were perforated by different operators. The buff card for each claim was checked against the corresponding red card by holding both cards against an illuminated glass plate. When discrepancies were revealed, reference to the line on the transcript sheet covering the case showed which card was correct. This process insured the accurate transfer of the facts from the transcript sheets to the tabulating cards.

The first process in the tabulation of the data was to identify the *deaths* in the experience separately from the claims. Often more than one claim was reported for one death; that is, in cases where the insured carried a number of policies on his or her life. The extra or secondary claims were designated by a distinguishing symbol which made it possible to sort out those cards which corresponded to deaths only. It was further decided to confine this investigation to the so-called "premium-paying business" of the Industrial Department. This excluded a small proportion of the experience on the lives of persons who were insured on a "paid-up" or similar basis. The reason for this will be made clearer as we proceed, but at this point it may be said that sufficiently detailed information with regard to the age, sex and color of these "paid-up" policyholders is not at hand. On the other hand, information with regard to the living premium-paying policyholders is especially complete, making possible the most detailed comparisons of the living and of the deceased policyholders.

CHAPTER II.

MORTALITY FROM ALL CAUSES OF DEATH COMBINED.

In this section we shall consider in some detail the total mortality of the insured group, that is, without distinction of the individual causes of death. We shall comment also upon the death rates for the several color, sex and age classes. Later we shall consider the special factors which we believe influence more or less the general mortality experience of those insured in an industrial life insurance company.

Deaths according to Color, Sex and Age.

A total of 635,449 deaths is represented in this experience for the calendar years 1911 to 1916 inclusive. Of this number 520,079 deaths were of white persons and 115,370 were deaths of colored persons. The following table gives a view of the color and sex composition of the deaths:

TABLE 3.

NUMBER AND PERCENTAGE OF DEATHS, CLASSIFIED BY COLOR AND BY SEX. *Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.*

Color and Sex.	Number of Deaths.	Percentage.
Total	635,449	100.0
White	520,079	81.8
Male	252,742	39.8
Female	267,337	42.1
Colored	115,370	18.2
Male	53,795	8.5
Female	61,575	9.7

It will be seen that a little more than four-fifths of the deaths were of white persons. Colored deaths were recorded in 18.2% of the total cases. Since only 12.5% of the number of persons exposed were colored, this higher representation of colored persons in the total of deaths indicates the higher death rate of that group of policyholders. For both white and colored persons there were more female than male deaths. This is accounted for by the fact that there is a larger proportion of females than males in the exposure. The significance of these several relations will be clearer when we proceed to relate the deaths to the number of living, that is, when we compare the death rates per 1,000 persons exposed in each class.

Age Composition of the Deaths.

It will be of interest to inquire also into the age composition* of the deaths recorded in this aggregate experience for the period 1911 to 1916. No deaths of persons under one year of age were included. Among the 635,449 deaths at ages one year and over, 58,009 or 9.1%, were between the ages of one and four years. Slightly more than one-fifth of the deaths (20.1%) occurred under the age of 20. Between the ages 20 and 64 years, the main working period of life, 60.1% of the deaths occurred. For the ages 65 and over there were recorded 19.7%, or just under one-fifth of the total. In other words, there was approximately the same proportion of deaths at the ages 65 and over as at the group of ages under 20 years. The foregoing facts are displayed in the following table:

TABLE 4.

NUMBER AND PERCENTAGE OF DEATHS CLASSIFIED BY AGE PERIOD.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Age Period.	Number.	Percentage.
All ages—one and over	635,449	100.0
1 to 4	58,009	9.1
5 to 9	26,645	4.2
10 to 14	16,606	2.6
15 to 19	26,655	4.2
20 to 24	35,027	5.5
25 to 34	73,429	11.6
35 to 44	80,152	12.6
45 to 54	87,734	13.8
55 to 64	105,673	16.6
65 to 74	97,361	15.3
75 and over	28,158	4.4

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* Ages of deceased persons were classified according to age *nearest* birthday. The age period 5 to 9 years, for instance, ranges from average age 4½ to average age 9½ years.

Death Rates per 1,000 Persons Exposed for the Entire Experience.

The 635,449 deaths reported during the six year period 1911 to 1916 represented a death rate of 11.81 per 1,000 exposed. Among the entire group of white persons the death rate was 11.04 per 1,000 and among colored lives, 17.22 per 1,000 exposed. This excess of practically one-half in the colored death rate will be treated analytically from various angles in the following text. The causes of death responsible for the larger part of this excessive mortality among colored persons, with especial comment upon the age and sex characteristics of the experience, will also be duly taken up. The following table gives a comparative view of the death rates per 1,000 persons exposed for each of the color and sex classes of this mortality experience for the entire period 1911 to 1916:

TABLE 5.

DEATHS, AND DEATH RATES PER 1,000 PERSONS EXPOSED. ALL CAUSES OF DEATH COMBINED. CLASSIFIED BY COLOR AND BY SEX.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Color and Sex.	Number of Deaths.	Death Rates per 1,000 Exposed.
Total	635,449	11.81
White	520,079	11.04
Males	252,742	11.82
Females	267,337	10.40
Colored	115,370	17.22
Males	53,795	17.63
Females	61,575	16.89

Considering only all ages in this experience combined, white females show the most favorable mortality record, followed by white males and colored females, with colored males exhibiting the highest death rate in this present mortality study of insured wage earners. More detailed comment upon these differences in mortality will be given in the following section on the age characteristics of mortality among insured wage earners.

Deaths and death rates by color, sex and age period. All causes of death combined.

The preceding table, giving the death rates per 1,000 persons exposed for each of the color and sex classes, is indeed too broad in its scope to warrant our drawing any conclusions on the differences in mortality of the several color and sex classes. A conclusion of this kind can be drawn only after an examination of the death rates for each of the color and sex classes, properly grouped according to ages. The following table gives the facts of mortality according to age period in this experience for insured wage earners:

TABLE 6.

MORTALITY FROM ALL CAUSES OF DEATH COMBINED, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates Per 1,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	11.81	11.82	10.40	17.63	16.89
1 to 4	12.86	12.69	11.75	21.79	20.77
5 to 9	3.66	3.64	3.33	5.42	5.64
10 to 14	2.53	2.32	2.16	4.65	5.72
15 to 19	4.39	3.76	3.58	9.32	11.36
20 to 24	6.43	5.97	5.27	12.04	12.57
25 to 34	8.67	9.24	6.70	14.23	12.36
35 to 44	12.83	15.90	9.23	19.20	16.14
45 to 54	19.08	23.64	14.37	27.64	24.12
55 to 64	34.56	40.03	28.98	46.91	40.17
65 to 74	72.53	79.68	66.91	84.21	73.39
75 and over	135.21	145.13	129.16	137.61	135.74

We shall discuss first the variation in the death rate from one age period to another for the total mortality experience. The age series of death rates shows a high mortality rate at the outset, beginning with the age period 1 to 4 years, followed by a sharp decline to a minimum for the age period 10 to 14 years. In most mortality investigations, the minimum death rates at any age period in life are usually to be found between 10 and 14 years of age. Thereafter, there occurs a gradually rising death rate up to the highest age period in the series. Not until we reach the age group 35 to 44 years do we find the mortality rate approximately as high, 12.83 per 1,000 persons exposed, as it was at the outset of this series. The rate rises in the next ten year divisional period of life to a figure of 19.08 per 1,000 and in the succeeding ten year period to a rate of 34.56 per 1,000. The highest significant age group in this study, 65 to 74 years, shows a rate of 72.53 per 1,000 persons exposed. In this report we shall not place much emphasis upon our figures for the age group 75 years and over, because of the unusual composition of the group as to the ages of the persons included in it. For white males in this mortality experience we find the same point of minimum incidence of mortality as was observed for the total experience. In adult life however the rise in the curve of mortality among white males is very much sharper than for the total experience. White females in this mortality investigation show a much more gradual upward slope of the mortality curve in adult life, in contrast to the sharpness of the upward trend of mortality among white males at the later adult ages. It should be noted that for colored females the minimum mortality rate is found between 5 and 9 years and not between 10 and 14 years as was the case for the other three main classes in this mortality study. We shall now consider a few comparative ratios of mortality between the white and colored races according to sex and between the two sexes within each color or race group.

Ratios of Mortality of White and Colored Races by Age Period.

a. White Male and Colored Male Death Rates Compared.

Considering all ages of the mortality experience of males, the colored show a mortality rate nearly fifty per cent. higher than that of the white race. The ratio of colored to white male mortality varies decidedly with the several age periods. In the ages of early adolescence, fifteen to nineteen years, colored male mortality shows its greatest ratio of excess over white male mortality. The colored male death rate, at this age period, is practically 250 per cent. of the rate for white males. Between five and twenty years of age, for each five year period, there is an increment of practically fifty per cent. in the excess of colored male over white male mortality. Between five and nine years, the excess of mortality was practically fifty per cent., between ten and fourteen years, one hundred per cent., and between fifteen and nineteen years, one hundred and fifty per cent. Beginning with the age period twenty to twenty-four years, there is a gradual decline in this excess of colored male over white male mortality. The only exception is the age period fifty-five to sixty-four years, which shows a practically stationary ratio of excess mortality, with respect to the preceding age period forty-five to fifty-four years. After these two age periods, the rate of colored male mortality does not differ greatly from that for white males. The following table displays the ratios of white and colored mortality for males:

TABLE 7.

MORTALITY FROM ALL CAUSES OF DEATH COMBINED. WHITE MALES AND COLORED MALES COMPARED.

Death Rates Per 1,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

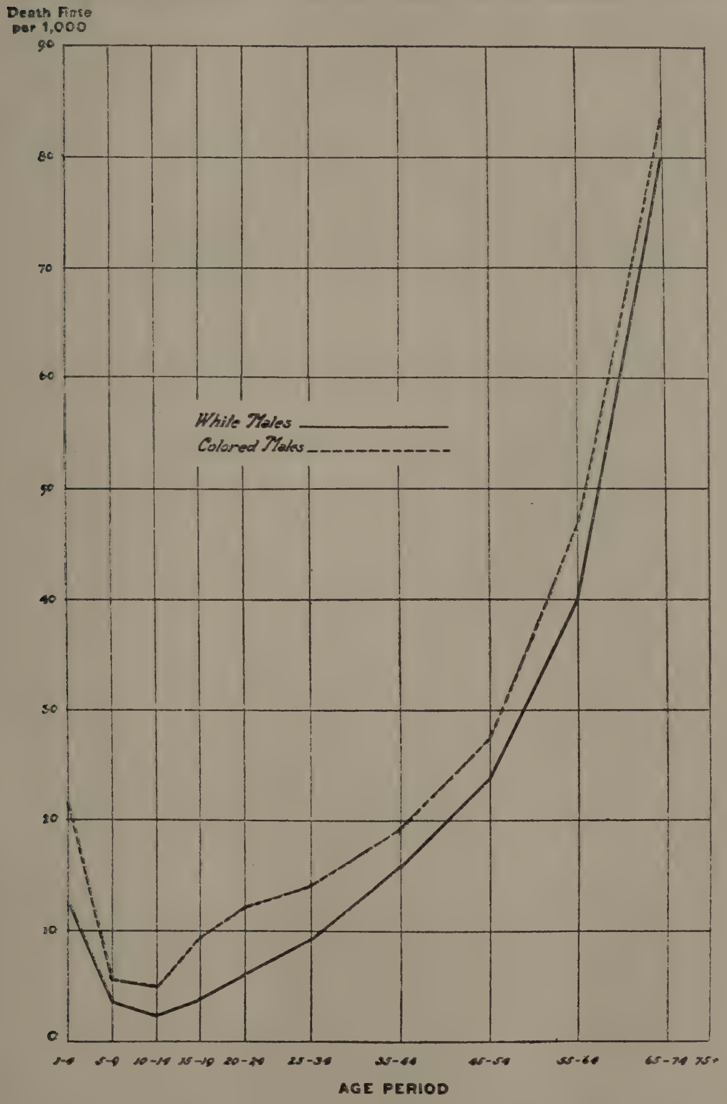
Age Period.	White Males.	Colored Males.	Percentage Colored of White Rate.
All ages—one and over.	11.82	17.63	149.2
1 to 4.........	12.69	21.79	171.7
5 to 9.........	3.64	5.42	148.9
10 to 14........	2.32	4.65	200.4
15 to 19........	3.76	9.32	247.9
20 to 24........	5.97	12.04	201.7
25 to 34........	9.24	14.23	154.0
35 to 44........	15.90	19.20	120.8
45 to 54........	23.64	27.64	116.9
55 to 64........	40.03	46.91	117.2
65 to 74........	79.68	84.21	105.7
75 and over.....	145.13	137.61	94.8

The reduction of these comparative figures to graphic form brings out a number of interesting characteristics of the mortality of the two races. The curve of the death rates of white male mortality, for instance, is continuously concave throughout. The colored male curve, between central age 12.5 years and central age thirty years, shows a somewhat convex form. The high death rate from pulmonary tuberculosis is the chief influence at work to produce this significant difference in the contour of the colored mortality curve. The chief item of interest in the graphic illustration (on page 17) of these two curves is the general tendency of mortality among colored males to approach mortality among white males at the advanced ages.

Chart II.—Mortality from All Causes of Death

Death Rates per 1,000 Persons Exposed. Classified by Age Periods. White Males and Colored Males Compared

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



b. White Female and Colored Female Death Rates Compared.

For all ages combined, the mortality among colored females was very nearly two-thirds in excess of the mortality among white females. The ratio of excess varied with age period. The point of maximum excess in colored female over white female mortality occurred in the age period fifteen to nineteen years—the period of adolescence. The rate for colored females was then more than three times as high as for white females (317.3%). In fact, the tendency of the colored mortality rate to diverge from the white mortality rate was more marked for females than for males at every age period of life. The following table displays the figures of comparative mortality of white and colored females:

TABLE 8.

MORTALITY FROM ALL CAUSES OF DEATH COMBINED. WHITE FEMALES AND COLORED FEMALES COMPARED.

Death Rates Per 1,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

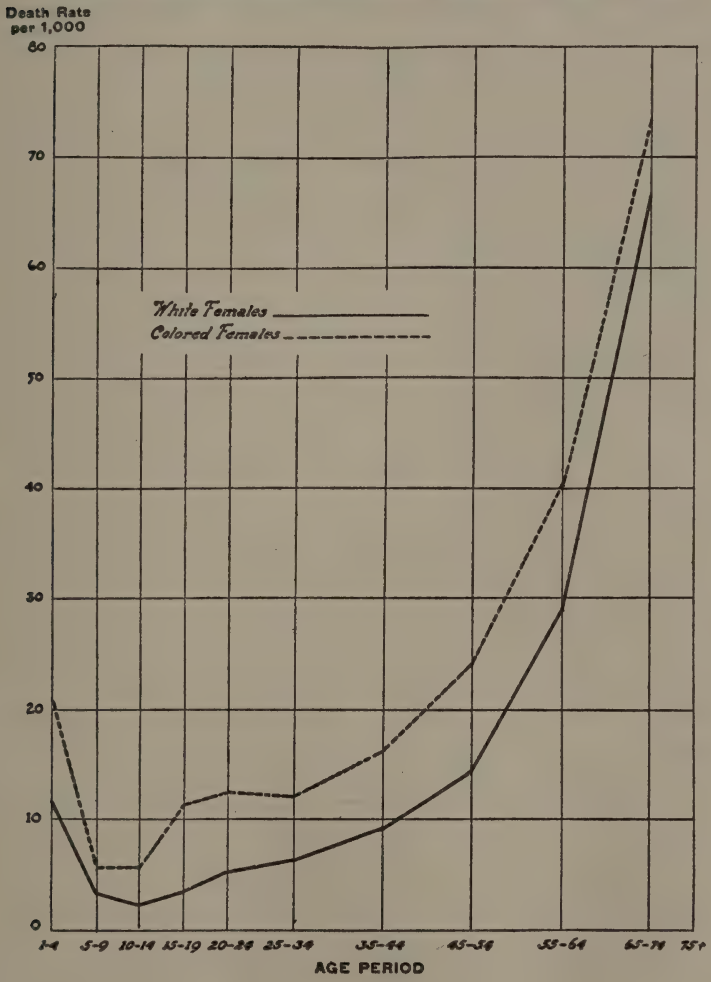
Age Period.	White Females.	Colored Females.	Percentage, Colored of White Rate.
All ages—one and over.	10.40	16.89	162.4
1 to 4.........	11.75	20.77	176.8
5 to 9.........	3.33	5.64	169.4
10 to 14...... ..	2.16	5.72	264.8
15 to 19........	3.58	11.36	317.3
20 to 24........	5.27	12.57	238.5
25 to 34........	6.70	12.36	184.5
35 to 44........	9.23	16.14	174.9
45 to 54........	14.37	24.12	167.8
55 to 64........	28.98	40.17	138.6
65 to 74........	66.91	73.39	109.7
75 and over.....	129.16	135.74	105.1

The contour of the mortality curve for colored females shows decidedly more profound disturbance between central age 12.5 years and central age 30 years than did the curve for colored males. The white female curve shows a slightly convex tendency between these two central ages. It will be recalled that the white male curve was concave throughout. Furthermore, the colored female curve is emphatically more convex between central ages 12.5 years and 30 years than the colored male curve between these limits. It will

Chart III.—Mortality from All Causes of Death

Death Rates per 1,000 Persons Exposed. Classified by Age Periods. White Females and Colored Females Compared

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



be pointed out in a later section just how much of this deformation in the mortality curve for colored males is due to tuberculosis, and for colored females to tuberculosis and the diseases and conditions incidental to the gravid and puerperal states.

The graphic illustration on page 19 gives a convenient view of the course of white and colored mortality throughout the various age periods for females.

The reader will be inclined to speculate upon the disproportion between the ratio of white and colored female mortality and the ratio of white and colored male mortality. It would seem, offhand, from the standpoint of comparative mortality, that colored females were by far the worse off. It must be remembered, however, that white male mortality bears a much more unfavorable relation to the total white mortality than does colored male mortality to the total mortality of colored lives. This situation should be borne in mind in drawing conclusions from a comparison of white and colored mortality according to sex. It will be of interest and profit, therefore, to view briefly the ratio of mortality according to sex within each color class.

Ratios of Mortality of Males and Females by Age Period.

For all ages combined, white male mortality was about fourteen per cent. in excess of white female mortality. This ratio was not constant, however, for the several age periods. Below twenty years of age, the excess of white male over white female mortality was never less than five nor more than ten per cent. Beginning with the age period twenty to twenty-four years, with its central age at 22.5 years, the excess of white male over white female mortality began to assume considerable proportions. In this age period, when white males begin to take up the arduous and toilsome labor of the great mass of the male wage earning population, white male mortality was over thirteen per cent. in excess of white female mortality. Between twenty-five and thirty-four years, with the central age at thirty years, white males showed a mortality rate thirty-eight per cent. in excess of the rate for white females. Between thirty-five and forty-four years, with the central age at forty years, we find the maximum point of excess in the mortality of white males over that of white females, namely, over seventy-two per cent. The relative excess of white male mortality begins to decline after that age period, but thereafter never approaches the figure for white female mortality nearer than twelve per cent. and that at the highest significant age period in this study. We shall see later that tuberculosis and accidents account for a very large part of this excess of white male over white female mortality.

As already suggested, the ratios of male and female mortality among colored lives present an emphatically different picture than do the ratios for white lives. Colored male mortality at any age period is never in excess of colored female mortality by more than twenty per cent. The range of life between central age 7.5 years and central age 22.5 years shows decidedly more favorable mortality among colored males than among colored females. Between ten and fourteen years, colored male mortality is nineteen per cent. more favorable than colored female mortality. The particular causes of death responsible for this favorable showing among colored males will be pointed out in succeeding parts of this report. Colored male mortality is in excess by nearly twenty per cent., the maximum ratio of excess, in the age period thirty-five to forty-four years. The following table gives a comparison of the sex ratios of mortality for the white and colored races:

TABLE 9.

PERCENTAGE. MALE OF FEMALE DEATH RATES CLASSIFIED BY COLOR AND BY AGE PERIOD.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Age Period.	White.	Colored.
All ages—one and over.......	113.7	104.4
1 to 4................	108.0	104.9
5 to 9................	109.3	96.1
10 to 14...............	107.4	81.3
15 to 19...............	105.0	82.0
20 to 24...............	113.3	95.8
25 to 34...............	137.9	115.1
35 to 44...............	172.3	119.0
45 to 54...............	164.5	114.6
55 to 64...............	138.1	116.8
65 to 74...............	119.1	114.7
75 and over...........	112.4	101.4

We may conclude, then, with the following general comment: among white persons the mortality rate of males is always in excess of that of females. This excess is least marked below age 25 and above 75, but not inconsiderable even at these ages. At the point of greatest difference, namely, at the age period 35 to 44 years, the male rate is nearly three-fourths in excess. Among colored persons, the picture is different in a number of essential respects. The male rate is lower than the female rate under age 25, with the single exception of children of one to four years. After 75 years the two rates are much the same. The actual death rate between 25 and 75 years is higher for colored males than females, but the excess is altogether moderate as compared with what we have noted among white lives.

Comparison of Death Rates per 1,000 exposed. White Persons in Insurance Experience, 1911 to 1916, and General Population of Expanding Registration Area, 1910 to 1915.

The mortality experience of insured wage earners, 1911 to 1916, may now be compared profitably with that for the general population of the expanding Registration Area of the United States, 1910 to 1915. A number of limitations to the completeness of this comparison must first be pointed out. We must make the comparison in the first place between the experience of white insured lives on the one hand and the total population, white and colored, of the expanding Registration Area, on the other. This is because the white insurance experience is most like that of the Registration Area from which the small proportion of colored cannot accurately be eliminated. The proportion of colored persons in the insurance experience for 1911 to 1916 (12.5%) is large and affects the total Metropolitan death rate too much to permit a comparison with the rate of the total Registration Area, with its very much smaller proportion of colored lives. It must be remembered also that at the time this comparison is being made there are available for the Registration Area only the data for the years 1910 to 1915 according to sex and age period. This constitutes a six-year period not very different from the period 1911 to 1916 for which the insurance data are at hand. There are other differences of area, occupational composition, etc., to which reference has already been made. But all considered, the differences in the figures which we shall point out fairly represent a true difference in the vitality of the two groups.

The annual reports of the United States Bureau of the Census on mortality statistics for the years 1910 to 1915 give tables showing the number of deaths classified by sex and age period and for each of the diseases or causes of death in the International List. There is, however, no corresponding record giving an official estimate of the populations exposed to risk in the Registration Area at the several age periods and by sex. In order to compute death rates it is necessary first, to estimate such population exposure. This was obtained by combining the estimated populations for each sex and age class in the expanding Registration Area for each year from 1910 to 1915 inclusive. Our thanks are due to Dr. F. L. Hoffman, Third Vice-President and Statistician of the Prudential Insurance Company of America, who placed at our disposal these estimates of population.

The following tables show the death rates per 1,000 living, for each of the sexes, in the Registration Area, 1910 to 1915, and a comparison with similar data for insured white males and females:

TABLE 10.

Mortality from All Causes of Death.

Death Rates Per 1,000 Persons Exposed. Classified by Sex and by Age Period. White Lives in Experience of Metropolitan Life Insurance Company, Industrial Dept., 1911 to 1916, and Estimated General Population of Expanding Registration Area, United States, 1910 to 1915.

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.
All ages—one and over.....	11.82	12.41	95.2	10.40	11.08	93.9
1 to 4......	12.69	12.28	103.3	11.75	11.28	104.2
5 to 9......	3.64	3.32	109.6	3.33	3.03	109.9
10 to 14.....	2.32	2.29	101.3	2.16	2.12	101.9
15 to 19.....	3.76	3.72	101.1	3.58	3.45	103.8
20 to 24.....	5.97	5.42	110.1	5.27	4.96	106.3
25 to 34.....	9.24	6.81	135.7	6.70	6.10	109.8
35 to 44.....	15.90	10.05	158.2	9.23	8.03	114.9
45 to 54.....	23.64	16.03	147.5	14.37	12.58	114.2
55 to 64.....	40.03	29.88	134.0	28.98	24.48	118.4
65 to 74.....	79.68	59.13	134.8	66.91	51.72	129.4
75 and over..	145.13	138.72	104.6	129.16	132.99	97.1

The facts for all ages combined in the two mortality experiences, on their face, indicate a more favorable mortality among insured white persons than among the general population. These figures are of significance, however, only with respect to the specific sex and age classes of the data. We shall see below that this favorable condition for all ages results from the peculiar age distribution of the group of policyholders. A larger proportion of policyholders appears at the ages of low mortality and a smaller proportion at the ages of high death rates than occurs in the general population. Let us make a comparison first of the figures for males, remembering throughout this discussion that the data for the insured group relate entirely to white lives.

The first fact of importance in this comparative view of the mortality of wage earners and of the general population is that for all ages under 25 years there is no marked divergence between the rates for the two groups under review. There are differences, of course, but these are not great. Beginning with the age group 25 to 34 years and thereafter there is, however, a marked excess in the rate of mortality among insured male wage earners over that among males in the general population. At these age periods, the special stresses of adult life and of employment in arduous labor make themselves felt in the mortality experience of males in an industrial life insurance company. Male insured wage earners in the age period 25 to 34 years, show a mortality rate nearly 36% in excess of the rates prevailing among males in the general population. The divergence between the two series of mortality figures increases somewhat in the next age period, 35 to 44 years, to 58%, and then declines to 48% between 45 and 54 years. Thereafter the excess of mortality among male insured wage earners is practically stationary at about 35%. After age 75, the figures are of no great value. It will be the function of the succeeding sections of this report on the several causes of death to point out in greater detail the reasons for this percentage of excess mortality among insured male wage earners.

The comparative table for the death rate of insured females in the families of wage earners and of females in the general population shows no such striking excesses of mortality as were observed in the table for males. Under the age of 35 years there are no marked divergences of the mortality curve. After 35 years the excess of the mortality rate among insured females becomes significant. For the age group 35 to 44 years we observed an excess of 15%, which ratio is about the same as that for the succeeding age group, 45 to 54 years. For the divisional period 55 to 64 years we notice an excess of 18% and for the age group 65 to 74 years an excess of 29% in the mortality rates of insured females. The reader will observe a marked peculiarity in the course of the ratio of excess mortality of insured females as compared with that recorded for insured males. In the latter group there was a sharp rise in the ratio of excess mortality from age 20 up to and including the age period 35 to 44 years and a decline for the age groups thereafter. Among insured females, however, there was no important excess in the mortality rates under 35 years of age over the rates for females in the general population, but a gradually rising rate for each age period thereafter up to and including the last significant divisional group, 65 to 74 years. The explanation for the difference between one series of ratios and the other will be found only upon careful analysis of the facts for the particular causes of death in the mortality experience.

Factors Influencing Industrial Insurance Mortality.

Before proceeding with any further comparison between the mortality experience of this group of insured wage earners and the mortality experience of the general population, it will be instructive to outline briefly some of the important factors which condition the mortality experience of an industrial life insurance company, and which are not prevalent in the general population.

The first important source of difference is that these data relate entirely to a group of wage earners and their families—independent, self-reliant wage earners, to be sure, who have endeavored to protect themselves as much as possible from the losses incident to the last illness and the cost of burial. The great mass of the wage earning population in America, however, are not in ordinary times as well situated to safeguard themselves against the effects of accident and disease as are the better situated strata of the population. The occupations they engage in are more hazardous, their families are larger and their incomes smaller than those of the general average of the population. These factors determine such important health situations as the adequacy of diet, housing, clothing, and equally, the standards of medical service at their disposal. These policyholders, too, live in the larger cities and towns, and are subjected to the unfavorable influences of city life. It may be expected, therefore, that the mortality experience of this large group of insured wage earners will show characteristics quite different from those of the general population or of special groups in the general population which have distinctly better living and working conditions. It is perhaps one of the chief functions of this report to point out definite lines of further inquiry into the general welfare of the wage earning group of the population. The more detailed and specialized questions as to the adequacy of wages, the level of the standard of living of American workingmen's families, of housing conditions, of hours of labor, of the intensity of labor, and of hygienic conditions in workshops and factories should be submitted to careful and conclusive inquiry. The supply of data on these important vital facts is at present severely limited. These mortality statistics provide, we believe, a sound point of departure for such qualified inquiry into the facts of the life and work of the American wage earner.

Downward Trend of Mortality of Insured Wage Earners from 1911 to 1916.

The important feature of this mortality experience is the capacity for decrease shown by the death rate in the brief period covered by this study. In the six years 1911 to 1916 inclusive, the death rate fell from 12.53 to 11.68 per 1,000 exposed, or a decline of 6.8%. Between the five years 1911 to 1915 the tendency was steadily downward year after year. It was only in 1916 that this tendency was checked, apparently as the result of a widespread prevalence of acute respiratory diseases, chiefly of the influenzal type. But even this serious condition had only a minor effect, raising the death rate by .4 per 1,000 persons exposed over the figure for 1915.

The amount of decline is much more marked if we consider white lives only. Between 1911 and 1916, the per cent. decline among white lives was 7.2. There is also a slight difference in the amount of improvement in the two sexes, the per cents. of decline among white males and white females being 6.0 and 8.2 respectively. For colored persons, the decrease was only 1.4%. There were fluctuations in the colored rates in an upward and downward direction during the several years. The colored males show an actual increase of 1.4% in mortality while the colored females show an improvement of 3.7%. The following table gives the death rates for the several groups of insured wage earners for each of the years 1911 to 1916 and for the entire six-year period:

TABLE 11.

Mortality from All Causes of Death Combined. Classified by Color and by Sex.

Death Rates Per 1,000 Persons Exposed. Single Years 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	11.81	11.82	10.40	17.63	16.89
1916..........	11.68	11.83	10.21	17.68	16.85
1915..........	11.31	11.05	10.04	17.42	17.12
1914..........	11.53	11.48	10.18	17.38	16.51
1913..........	11.99	12.20	10.49	17.90	16.29
1912..........	12.01	11.97	10.55	17.98	17.12
1911..........	12.53	12.58	11.11	17.42	17.50

Reduction of Mortality in the General Population of the Expanding Registration Area and among Insured Wage Earners Compared.

For purposes of comparison, we must again turn to the facts for the general population as reflected in the figures of the expanding Registration Area. These figures will indicate whether the marked improvement which we have observed among insured lives is paralleled by the conditions in the general population or whether the insured have enjoyed conditions which were especially favorable to them. In view of the fact that the detailed figures for 1916 for the Registration Area are not as yet available and also because the insurance experience begins with 1911, we shall limit our comparison of the two experiences to the five-year period 1911 to 1915 inclusive.

For the total Registration Area of the United States there was observed between 1911 and 1915 a decline of only 4.7 per cent. This compares with a 9.7 per cent. decline among the white insured group in the same five year period. It must be remembered also that the insurance figures do not include facts for infants under one year of age as do the foregoing data for the Registration Area of the United States. The improvement in infant mortality during the period under examination has been very marked and this undoubtedly has had a very favorable influence on the total death rate of the Registration Area. If the expanding Registration

Area data at all ages were to be arranged for only those lives above one year of age, as is the case for the Metropolitan experience, a less favorable reduction than 4.7% would undoubtedly be found and the advantage in favor of the insured would be even more striking.

In order to compare the facts for each of the two sexes, we may safely use the figures for all males in the Registration Area and contrast them with those for white males in the insurance experience, because the composition of the Registration Area is substantially white. Between 1911 and 1915, males in the Registration Area showed a reduction of exactly 5% in mortality as compared with a percentage reduction of 12.2 among the insured white males. Females in the general population at all ages show a decline of only 4.3%, as compared with a decline of 9.6% among insured white females at ages one and over. Taking all white lives together, the insured group showed a decline in mortality of eleven per cent. and all the white lives in the Registration Area a decline of only 5.4%.

The percentage of decline of mortality among colored lives was more pronounced for the general population than for insured colored wage earners, but was small in each instance. The group of colored persons in the population of the Registration Area showed a reduction of 2.7 per cent., whereas, the entire group of colored lives in the insurance experience showed a reduction of only 1.2% between 1911 and 1915. This improvement was entirely confined to the colored females. The percentage of decline of colored mortality in the general population and among insured wage earners does not affect a very large number of lives exposed in either experience and may be disregarded for comparative purposes in the present discussion. This can readily be done in view of the fact that insured colored persons are located almost entirely in urban areas, whereas a fair proportion of the negroes in the Registration Area are rural dwellers. It will be seen, therefore, that the mortality experience of insured white wage earners shows by far the more favorable general tendency when compared with the mortality experience of the general population.

The following table presents a comparison of the death rates of the aggregate white and colored groups among the insured and the general population for the period 1911 to 1915 as well as the per cent. reduction between the two periods.

TABLE 12.

Mortality from All Causes of Death Combined.

Death Rates Per 1,000 Persons Exposed, 1911 to 1915.

White and Colored Lives, Males and Females, of Expanding Registration Area of the United States and in Experience of Metropolitan Life Insurance Company, Industrial Department, Compared.*

Year.	White Lives.		Colored Lives.		Males.		Females.	
	Reg. Area.	M. L. I. Co.	Reg. Area.	M. L. I. Co.	Reg. Area.	M. L. I. Co. Wh. Males.	Reg. Area.	M. L. I. Co. Wh. Females.
1915.......	13.00	10.49	23.04	17.26	14.26	11.05	12.69	10.04
1914.......	13.16	10.77	21.96	16.90	14.46	11.48	12.71	10.18
1913.......	13.65	11.26	21.92	17.02	15.00	12.20	13.09	10.49
1912.......	13.47	11.20	22.92	17.51	14.75	11.97	12.94	10.55
1911.......	13.74	11.79	23.69	17.46	15.01	12.58	13.26	11.11
Per cent decline 1911 to 1915...	5.39	11.03	2.74	1.15	5.00	12.16	4.30	9.63

* Registration Area rates are for all ages; insurance experience applies only to ages one and over.

A more intimate view of these two experiences will be afforded when the data for each of the important diseases and conditions are taken up. In these later sections we shall direct attention to the conditions which are largely responsible for the progressively favorable mortality of white insured lives as compared with the general population of the expanding Registration Area of the United States.

CHAPTER III.

MORTALITY FROM PRINCIPAL CAUSES OF DEATH.

The main outlines of the mortality experience of insured wage earners for all causes of death combined appear in the foregoing text. Data of this type, however valuable, are rather bare in their public health value unless supplemented by further analysis according to the principal diseases and conditions responsible for the mortality. It is one of the favorable features of this report that we were able to secure exceptionally complete statistics of the causes of death in the course of our tabulations. The documents available for our study, namely, the so-called "claim papers" contain, usually, a number of statements of the disease or condition causing death. The most important of these is, of course, the certificate as submitted by the attending physician, who, in the great majority of the cases, also completes the official death certificate for the use of the general registration service of the community in which the insured person dies. There are also at hand the statements of the cause of death as made by the beneficiary, who represents the family of the deceased, as well as that completed by the local representatives of the company. Often newspaper clippings and other illuminating additions are attached to the papers, and especially in cases of accidental death or where a coroner's inquest is called for.

Effort to Improve Accuracy of Certified Causes of Death.

Every effort has been made in the conduct of this mortality study to secure from certifying physicians as complete and accurate statements of the diseases or conditions causing death as practicable. This end was achieved by means of an extensive system of correspondence with the certifying physicians, pointing out where certain forms of statements of diseases causing death were unsatisfactory for statistical use, and what manner of additional clarifying information we desired to have. A few examples may be cited to illustrate the procedure.

1. The physician reports on the death certificate that a child has died from ''bronchopneumonia.'' In view of the fact that this disease or condi-

tion is so often a terminal state of infectious disease, our letter asked the physician to say whether any infection, such as measles or whooping cough, or whether trauma was the primary causative condition. In numerous instances, physicians replied to our inquiries and said that they had omitted to certify to the primary infection or condition, i. e., measles, whooping cough, scarlet fever, etc.

2. ''Peritonitis'' is also a statement of cause of death which does not convey to the compiling statistician the information he must have in order to report upon the prevalence of the socially important primary diseases and conditions which result in fatal ''peritonitis.'' In this instance, the letter of inquiry asks the physician whether the ''peritonitis'' followed a surgical operation for any one of many conditions such as appendicitis, ulcer of the stomach, cancer of the stomach or of the intestines, etc., or whether, in the case of a woman of child-bearing age, the ''peritonitis'' was the sequel of any condition associated with the maternal state. The facts of mode and nature of accidental, homicidal or suicidal injury, were also inquired for.

3. ''Injury'' is a report which may be properly chargeable to either of the primary subdivisions of violence: suicide, homicide or accident. These, in turn, are classified accurately only if the means of ''injury'' is given. A death reported in this way, if it was suicidal, may have been primarily due to suicide by gunshot wound, or by a cutting instrument, or by jumping from a high place; if accidental, the means of ''injury'' may have been a firearm, a cutting instrument, an accidental fall, a fall or an explosion in a mine or quarry—death may have been due, indeed, to a machinery accident, a railroad accident, a street-car accident, or to any one of many accidental causes. Inasmuch as the International List of Causes of Death provides for the *separate* grouping of each of the means of ''injury'' cited above, we can not classify a report like ''injury,'' ''fracture,'' ''wound,'' ''traumatism,'' or any of many similar reports with accuracy unless information is provided as to the means or manner in which the ''injury,'' etc., occurred. The letter of inquiry sent to the certifying physician in such cases usually results in the receipt of data covering the additional circumstances that are required for the final assignment of the cause of death.

These three examples, of many, indicate in general the principle underlying this method of clearing up indefinite and otherwise unsatisfactory reports of diseases or conditions causing death.* In another publication,† there will be found a rather complete discussion of the methods and results of this inquiry system and the probable effect of the method in improving the precision of the statement of the various primary causative factors in mortality. There were received from certifying physicians in connection with the deaths reported in this six year mortality investigation about 25,000 letters. In the great majority of cases, the information conveyed by these letters made it possible for us to reach a much closer approximation to the real facts respecting the several important diseases and conditions among insured wage earners. An analysis of the returns from the inquiry procedure shows that in a period of six years the death rate for such an undesirable title as "fractures" was reduced 65%, for "simple peritonitis" the reduction was 41% and for "acute nephritis" 21%. The registration of certain more definite causes of death was improved; for example, measles and scarlet fever showed an increase of 3% each, cancer of the breast 5%, tuberculous meningitis nearly 13%, syphilis 97%, and gonococcus infection 138%,—all through the direct influence of this inquiry method. Appendix C shows the number of deaths charged to certain causes before and after inquiry, and the percentage of changes in classification.

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* Other indefinite terms subject to inquiry are: ''Accident,'' ''operation,'' ''acute nephritis,'' ''meningitis,'' ''tumor,'' ''septicemia,'' and many others.

† ''Improvement of Statistics of Cause of Death through Supplementary Inquiries to Physicians.'' *Quarterly Publications* of the American Statistical Association, June, 1916.

Nomenclature and Classification of Diseases.

If no pains were spared to secure complete original data on the diseases and conditions responsible for mortality among insured wage earners, every effort was also made to handle the material received by the Statistical Bureau in a manner so approved that the tabulations would be comparable with those of the best statistical offices of the country and especially the Federal Bureau of the Census. The diseases and conditions causing death reported upon the certificates were compiled according to the "International List of Causes of Death." The great variety of terms used by physicians in various parts of the country were thus brought together and made to agree with the standard nomenclature as followed by the Census Bureau. In addition, the rules and regulations of the "Manual of the International List of Causes of Death" were followed in handling "jointly reported causes of death." While published statistics of causes of death are necessarily stated in terms of single diseases or conditions, physicians on their certificates often give a number of such causes. The rules of the Manual indicate clearly the procedure to follow in such cases and these were strictly adhered to. The list of precedents of the Bureau of the Census as published in the "Index of Joint Causes—1914" served also as our guide in the treatment of "jointly reported causes of death." The results of this mortality experience for insured wage earners are, therefore, substantially comparable with the facts published for the Registration Area.

To carry on this work, as well as to tabulate the various non-medical items of our study, it was necessary to organize a specially selected and trained staff. Virtually every item appearing in this volume was codified by one clerk and checked by another. The sorting and tabulation processes were in like manner always certified as to their accuracy. The watchword throughout the whole study conducted over a period of six years has been "*care.*" These precautions have been taken because it was felt from the very beginning that we should do all in our power to offset the inherent deficiencies in the material as returned by physicians; for, even in large cities, where the best conditions of medical practice prevail, there is a certain irreducible amount of uncertainty and inaccuracy in statements of cause of death. We have felt that these should not be augmented through any element of indifference or carelessness in the statistical procedure followed. It is our firm belief that we have in this mortality investigation of insured wage earners as accurate and authentic a record of the principal diseases and conditions causing death as it has ever been possible to obtain in any similar enterprise anywhere.

The following table presents a list of the number of deaths and of the death rates per one hundred thousand persons exposed for each of the titles in the detailed International List of Causes of Death.

TABLE 13.

NUMBER OF DEATHS, AND DEATH RATES PER 100,000 PERSONS EXPOSED. CLASSIFIED BY COLOR AND BY SEX.

Titles of Detailed International List of Causes of Death.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Int. List No.	Cause of Death.	Number of Deaths.								Death Rates per 100,000 Persons Exposed.							Int. List No.
		Total Experience.		White Lives.			Colored Lives.			Total Experience.	White Lives.			Colored Lives.			
		Number.	Percentage.	Total.	Males.	Females.	Total.	Males.	Females.		Total.	Males.	Females.	Total.	Males.	Females.	
1 to 189	ALL CAUSES OF DEATH—TOTAL	635449	100.00	520079	252742	267337	115370	53795	61575	1181.2	1104.2	1181.6	1039.9	1722.4	1762.6	1688.8	1 to 189
1 to 59	GENERAL DISEASES	225112	35.43	180243	86277	93966	44869	20077	24792	418.5	382.7	403.4	365.5	669.9	657.8	680.0	1 to 59
1	Typhoid fever	9011	1.42	6677	3380	3297	2334	1088	1246	16.8	14.2	15.8	12.8	34.8	35.6	34.2	1
2	Typhus fever	1	‡	1	1	—	—	—	—	†	†	†	—	—	—	—	2
3	Relapsing fever	8	‡	3	1	2	5	2	3	†	†	†	†	.1	.1	.1	3
4	Malaria	2295	.36	946	451	495	1349	542	807	4.3	2.0	2.1	1.9	20.1	17.8	22.1	4
5	Smallpox	103	.02	72	36	36	31	15	16	.2	.2	.2	.1	.5	.5	.4	5
6	Measles	4776	.75	4442	2242	2200	334	160	174	8.9	9.4	10.5	8.6	5.0	5.2	4.8	6
7	Scarlet fever	4638	.73	4484	2273	2211	154	75	79	8.6	9.5	10.6	8.6	2.3	2.5	2.2	7
8	Whooping cough	3075	.48	2454	1007	1447	621	281	340	5.7	5.2	4.7	5.6	9.3	9.2	9.3	8
9	Diphtheria and croup	13089	2.06	12485	6373	6112	604	292	312	24.3	26.5	29.8	23.8	9.0	9.6	8.6	9
10	Influenza	8056	1.27	6022	2411	3611	2034	810	1224	15.0	12.8	11.3	14.1	30.4	26.5	33.6	10
11	Miliary fever	1	‡	—	—	—	1	—	1	†	—	—	—	†	—	†	11
12	Asiatic cholera	5	‡	5	2	3	—	—	—	†	†	†	†	—	—	—	12
13	Cholera nostras	190	.03	157	83	74	33	13	20	.4	.3	.4	.3	.5	.4	.5	13
14	Dysentery	2029	.32	1496	648	848	533	212	321	3.8	3.2	3.0	3.3	8.0	6.9	8.8	14
15	Plague	1	‡	1	—	1	—	—	—	†	†	—	†	—	—	—	15
16	Yellow fever	1	‡	1	1	—	—	—	—	†	†	†	—	—	—	—	16
17	Leprosy	11	‡	7	5	2	4	2	2	†	†	†	†	.1	.1	.1	17
18	Erysipelas	1289	.20	1169	596	573	120	62	58	2.4	2.5	2.8	2.2	1.8	2.0	1.6	18
19	Other epidemic diseases	184	.03	167	86	81	17	7	10	.3	.4	.4	.3	.3	.2	.3	19
20	Purulent infection and septicemia	1083	.17	909	482	427	174	86	88	2.0	1.9	2.3	1.7	2.6	2.8	2.4	20
21	Glanders	6	‡	4	3	1	2	2	—	†	†	†	†	†	.1	†	21
22	Anthrax	27	‡	27	21	6	—	—	—	.1	.1	.1	†	—	—	—	22
23	Rabies	84	.01	71	54	17	13	7	6	.2	.2	.3	.1	.2	.2	.2	23
24	Tetanus	890	.14	667	479	188	223	166	57	1.7	1.4	2.2	.7	3.3	5.4	1.6	24
25	Mycoses	14	‡	12	10	2	2	1	1	†	†	†	†	†	†	†	25
26	Pellagra	2310	.36	1362	352	1010	948	194	754	4.3	2.9	1.6	3.9	14.2	6.4	20.7	26
27	Beriberi	4	‡	3	2	1	1	—	1	†	†	†	†	†	—	†	27

‡ Less than .005 per cent.

† Less than .05 per 100,000 exposed.

Int. List No.	Cause of Death.	Number of Deaths.								Death Rates per 100,000 Persons Exposed.							Int. List No.
		Total Experience.		White Lives.			Colored Lives.			Total Experience.	White Lives.			Colored Lives.			
		Number.	Percentage.	Total.	Males.	Females.	Total.	Males.	Females.		Total.	Males.	Females.	Total.	Males.	Females.	
	Tuberculosis, all forms	110363	17.37	83200	45319	37881	27163	13123	14040	205.1	176.7	211.9	147.3	405.5	430.0	385.1	
28	Tuberculosis of the lungs	93526	14.72	71116	39353	31763	22410	10902	11508	173.9	151.1	184.0	123.5	334.6	357.2	315.6	28
29	Acute miliary tuberculosis	6380	1.00	4143	2087	2056	2237	1038	1199	11.9	8.8	9.8	8.0	33.4	34.0	32.9	29
30	Tuberculous meningitis	4647	.73	3936	1953	1983	711	357	354	8.6	8.4	9.1	7.7	10.6	11.7	9.7	30
31	Abdominal tuberculosis	3155	.50	1970	791	1179	1185	470	715	5.9	4.2	3.7	4.6	17.7	15.4	19.6	31
32	Pott's disease	866	.14	681	381	300	185	104	81	1.6	1.4	1.8	1.2	2.8	3.4	2.2	32
33	White swellings	573	.09	463	278	185	110	77	33	1.1	1.0	1.3	.7	1.6	2.5	.9	33
34	Tuberculosis of other organs	959	.15	724	395	329	235	125	110	1.8	1.5	1.8	1.3	3.5	4.1	3.0	34
35	Disseminated tuberculosis	257	.04	167	81	86	90	50	40	.5	.4	.4	.3	1.3	1.6	1.1	35
36	Rickets	174	.03	100	43	57	74	36	38	.3	.2	.2	.2	1.1	1.2	1.0	36
37	Syphilis	4659	.73	2988	1984	1004	1671	988	683	8.7	6.3	9.3	3.9	24.9	32.4	18.7	37
38	Gonococcus infection	200	.03	117	46	71	83	31	52	.4	.2	.2	.3	1.2	1.0	1.4	38
	Cancer and other malignant tumors (total)	37666	5.93	33520	10784	22736	4146	946	3200	70.0	71.2	50.4	88.4	61.9	31.0	87.8	
39	Of the buccal cavity	1353	.21	1229	989	240	124	75	49	2.5	2.6	4.6	.9	1.9	2.5	1.3	39
40	Of the stomach, liver	14153	2.23	12983	5309	7674	1170	494	676	26.3	27.6	24.8	29.8	17.5	16.2	18.5	40
41	Of the peritoneum, intestines, rectum	4482	.71	4115	1414	2701	367	103	264	8.3	8.7	6.6	10.5	5.5	3.4	7.2	41
42	Of the female genital organs	7882	1.24	6499	—	6499	1383	—	1383	14.7	13.8	—	25.3	20.6	—	37.9	42
43	Of the breast	3579	.56	3035	31	3004	544	9	535	6.7	6.4	.1	11.7	8.1	.3	14.7	43
44	Of the skin	938	.15	887	478	409	51	25	26	1.7	1.9	2.2	1.6	.8	.8	.7	44
45	Of other organs or of organs not specified	5279	.83	4772	2563	2209	507	240	267	9.8	10.1	12.0	8.6	7.6	7.9	7.3	45
46	Other tumors (tumors of the female genital organs excepted)	293	.05	212	51	161	81	9	72	.5	.5	.2	.6	1.2	.3	2.0	46
47	Acute articular rheumatism	3409	.54	2814	1303	1511	595	245	350	6.3	6.0	6.1	5.9	8.9	8.0	9.6	47
48	Chronic rheumatism and gout	598	.09	495	159	336	103	41	62	1.1	1.1	.7	1.3	1.5	1.3	1.7	48
49	Scurvy	21	‡	19	11	8	2	1	1	†	†	.1	†	†	†	†	49
50	Diabetes	7762	1.22	7059	2305	4754	703	289	414	14.4	15.0	10.8	18.5	10.5	9.5	11.4	50
51	Exophthalmic goitre	743	.12	632	40	592	111	8	103	1.4	1.3	.2	2.3	1.7	.3	2.8	51
52	Addison's disease	164	.03	159	56	103	5	2	3	.3	.3	.3	.4	.1	.1	.1	52
53	Leukemia	762	.12	687	378	309	75	39	36	1.4	1.5	1.8	1.2	1.1	1.3	1.0	53
54	Anemia, chlorosis	1772	.28	1610	507	1103	162	49	113	3.3	3.4	2.4	4.2	2.4	1.6	3.1	54
55	Other general diseases	426	.07	373	160	213	53	18	35	.8	.8	.7	.8	.8	.6	1.0	55
56	Alcoholism (acute or chronic)	2555	.40	2294	1889	405	261	207	54	4.7	4.9	8.8	1.6	3.9	6.8	1.5	56
57	Chronic lead poisoning	191	.03	173	168	5	18	18	—	.4	.4	.8	†	.3	.6	—	57
58	Other chronic occupation poisonings	9	‡	7	6	1	2	2	—	†	†	†	†	†	.1	—	58
59	Other chronic poisonings	164	.03	140	69	71	24	8	16	.3	.3	.3	.3	.4	.3	.4	59

‡ Less than .005 per cent.

† Less than .05 per 100,000 exposed.

TABLE 13—(*Continued*).

NUMBER OF DEATHS, AND DEATH RATES PER 100,000 PERSONS EXPOSED. CLASSIFIED BY COLOR AND BY SEX.

Titles of Detailed International List of Causes of Death.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Int. List No.	Cause of Death.	Number of Deaths.								Death Rates per 100,000 Persons Exposed.							Int. List No.
		Total Experience.		White Lives.			Colored Lives.			Total Experience.	White Lives.			Colored Lives.			
		Number.	Percentage.	Total.	Males.	Females.	Total.	Males.	Females.		Total.	Males.	Females.	Total.	Males.	Females.	
60 to 76	**DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE**	57606	9.07	47951	21801	26150	9655	4184	5471	107.1	101.8	101.9	101.7	144.1	137.1	150.0	60 to 76
60	Encephalitis	519	.08	414	214	200	105	53	52	1.0	.9	1.0	.8	1.6	1.7	1.4	60
61	Meningitis	4171	.66	3570	1907	1663	601	336	265	7.8	7.6	8.9	6.5	9.0	11.0	7.3	61
62	Locomotor ataxia	797	.13	704	513	191	93	59	34	1.5	1.5	2.4	.7	1.4	1.9	.9	62
A63	Acute anterior poliomyelitis	1889	.30	1758	990	768	131	69	62	3.5	3.7	4.6	3.0	2.0	2.3	1.7	A63
B63	Other diseases of the spinal cord	2160	.34	1804	856	948	356	170	186	4.0	3.8	4.0	3.7	5.3	5.6	5.1	B63
64	Cerebral hemorrhage, apoplexy	36638	5.77	30741	12886	17855	5897	2347	3550	68.1	65.3	60.2	69.5	88.0	76.9	97.4	64
65	Softening of the brain	488	.08	408	193	215	80	38	42	.9	.9	.9	.8	1.2	1.2	1.2	65
66	Paraylsis without specified cause	2773	.44	1824	758	1066	949	358	591	5.2	3.9	3.5	4.1	14.2	11.7	16.2	66
67	General paralysis of the insane	2224	.35	1747	1056	691	477	274	203	4.1	3.7	4.9	2.7	7.1	9.0	5.6	67
68	Other forms of mental alienation	757	.12	584	195	389	173	82	91	1.4	1.2	.9	1.5	2.6	2.7	2.5	68
69	Epilepsy	1869	.29	1553	864	689	316	181	135	3.5	3.3	4.0	2.7	4.7	5.9	3.7	69
70	Convulsions (nonpuerperal)	98	.02	77	28	49	21	6	15	.2	.2	.1	.2	.3	.2	.4	70
71	Convulsions of infants	461	.07	390	204	186	71	34	37	.9	.8	1.0	.7	1.1	1.1	1.0	71
72	Chorea	98	.02	91	26	65	7	3	4	.2	.2	.1	.3	.1	.1	.1	72
73	Neuralgia and neuritis	310	.05	266	102	164	44	15	29	.6	.6	.5	.6	.7	.5	.8	73
74	Other diseases of the nervous system	1349	.21	1124	532	592	225	108	117	2.5	2.4	2.5	2.3	3.4	3.5	3.2	74
75	Diseases of the eyes and their annexa	43	.01	34	16	18	9	2	7	.1	.1	.1	.1	.1	.1	.2	75
76	Diseases of the ears	962	.15	862	461	401	100	49	51	1.8	1.8	2.2	1.6	1.5	1.6	1.4	76
77 to 85	**DISEASES OF THE CIRCULATORY SYSTEM**	94415	14.86	78192	34636	43556	16223	7257	8966	175.5	166.0	161.9	169.4	242.2	237.8	245.9	77 to 85
77	Pericarditis	624	.10	449	197	252	175	73	102	1.2	1.0	.9	1.0	2.6	2.4	2.8	77
78	Acute endocarditis	5080	.80	4140	1871	2269	940	412	528	9.4	8.8	8.7	8.8	14.0	13.5	14.5	78
79	Organic diseases of the heart	75345	11.86	62148	26923	35225	13197	5830	7367	140.1	132.0	125.9	137.0	197.0	191.0	202.0	79

Int. List No.	Cause of Death.	Number of Deaths.								Death Rates per 100,000 Persons Exposed.							Int. List No.
		Total Experience.		White Lives.			Colored Lives.			Total. Experience.	White Lives.			Colored Lives.			
		Number.	Percentage.	Total.	Males.	Females.	Total.	Males.	Females.		Total.	Males.	Females.	Total.	Males.	Females.	
80	Angina pectoris	2218	.35	1866	977	889	352	141	211	4.1	4.0	4.6	3.5	5.3	4.6	5.8	80
81	Diseases of the arteries[1]	9142	1.44	7914	4020	3894	1228	651	577	17.0	16.8	18.8	15.1	18.3	21.3	15.8	81
82	Embolism and thrombosis	1192	.19	1008	380	628	184	84	100	2.2	2.1	1.8	2.4	2.7	2.8	2.7	82
83	Diseases of the veins[2]	455	.07	385	118	267	70	24	46	.8	.8	.6	1.0	1.0	.8	1.3	83
84	Diseases of the lymphatic system	165	.03	139	83	56	26	15	11	.3	.3	.4	.2	.4	.5	.3	84
85	Hemorrhage; other diseases of the circulatory system	194	.03	143	67	76	51	27	24	.4	.3	.3	.3	.8	.9	.7	85
86 to 98	DISEASES OF THE RESPIRATORY SYSTEM	71345	11.23	58583	29140	29443	12762	6642	6120	132.6	124.4	136.2	114.5	190.5	217.6	167.8	86 to 98
86	Diseases of the nasal fossae	72	.01	59	33	26	13	9	4	.1	.1	.2	.1	.2	.3	.1	86
87	Diseases of the larynx	594	.09	532	305	227	62	34	28	1.1	1.1	1.4	.9	.9	1.1	.8	87
88	Diseases of the thyroid body	188	.03	156	26	130	32	5	27	.3	.3	.1	.5	.5	.2	.7	88
89	Acute bronchitis	2636	.41	2167	943	1224	469	196	273	4.9	4.6	4.4	4.8	7.0	6.4	7.5	89
90	Chronic bronchitis	4224	.66	3523	1453	2070	701	286	415	7.9	7.5	6.8	8.1	10.5	9.4	11.4	90
91	Bronchopneumonia	16224	2.55	13843	6338	7505	2381	1152	1229	30.2	29.4	29.6	29.2	35.5	37.7	33.7	91
92	Pneumonia (lobar and undefined)	41707	6.56	33844	17659	16185	7863	4318	3545	77.5	71.9	82.6	63.0	117.4	141.5	97.2	92
93	Pleurisy	1985	.31	1593	853	740	392	213	179	3.7	3.4	4.0	2.9	5.9	7.0	4.9	93
94	Pulmonary congestion[3]	939	.15	775	319	456	164	85	79	1.7	1.6	1.5	1.8	2.4	2.8	2.2	94
95	Gangrene of the lung	171	.03	153	100	53	18	11	7	.3	.3	.5	.2	.3	.4	.2	95
96	Asthma	1594	.25	1190	607	583	404	182	222	3.0	2.5	2.8	2.3	6.0	6.0	6.1	96
97	Pulmonary emphysema	123	.02	99	60	39	24	18	6	.2	.2	.3	.2	.4	.6	.2	97
98	Other diseases of the respiratory system (tuberculosis excepted)	888	.14	649	444	205	239	133	106	1.7	1.4	2.1	.8	3.6	4.4	2.9	98
99 to 118	DISEASES OF THE DIGESTIVE SYSTEM	49146	7.73	41295	19862	21433	7851	3526	4325	91.4	87.7	92.9	83.4	117.2	115.5	118.6	99 to 118
99	Diseases of the mouth and annexa	200	.03	163	73	90	37	15	22	.4	.3	.3	.4	.6	.5	.6	99
100	Diseases of the pharynx	1153	.18	994	545	449	159	65	94	2.1	2.1	2.5	1.7	2.4	2.1	2.6	100
101	Diseases of the esophagus	124	.02	115	70	45	9	5	4	.2	.2	.3	.2	.1	.2	.1	101
102	Ulcer of the stomach	2159	.34	1735	929	806	424	189	235	4.0	3.7	4.3	3.1	6.3	6.2	6.4	102
103	Other diseases of the stomach	4921	.77	3358	1480	1878	1563	628	935	9.1	7.1	6.9	7.3	23.3	20.6	25.6	103
104	Diarrhea and enteritis (under 2 years)	6684	1.05	6127	3199	2928	557	314	243	12.4	13.0	15.0	11.4	8.3	10.3	6.7	104
105	Diarrhea and enteritis (2 years and over)	7489	1.18	6232	2830	3402	1257	491	766	13.9	13.2	13.2	13.2	18.8	16.1	21.0	105

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[1] Includes atheroma, aneurism, etc.

[2] Includes varices, hemorrhoids phlebitis, etc.

[3] Includes pulmonary apoplexy.

TABLE 13—(*Continued*).

NUMBER OF DEATHS, AND DEATH RATES PER 100,000 PERSONS EXPOSED. CLASSIFIED BY COLOR AND BY SEX.

Titles of Detailed International List of Causes of Death.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Int. List No.	Cause of Death.	Number of Deaths.								Death Rate per 100,000 Persons Exposed.							Int. List No.
		Total Experience.		White Lives.			Colored Lives.			Total Experience.	White Lives.			Colored Lives.			
		Number.	Percentage.	Total.	Males.	Females.	Total.	Males.	Females.		Total.	Males.	Females.	Total.	Males.	Females.	
106	Ankylostomiasis	12	‡	9	5	4	3	1	2	†	†	†	†	†	†	.1	106
107	Intestinal parasites	57	.01	39	14	25	18	7	11	.1	.1	.1	.1	.3	.2	.3	107
108	Appendicitis and typhlitis	6345	1.00	5454	2832	2622	891	423	468	11.8	11.6	13.2	10.2	13.3	13.9	12.8	108
A109	Hernia	2357	.37	2075	788	1287	282	170	112	4.4	4.4	3.7	5.0	4.2	5.6	3.1	A109
B109	Intestinal obstruction	3162	.50	2619	1039	1580	543	209	334	5.9	5.6	4.9	6.1	8.1	6.8	9.2	B109
110	Other diseases of the intestines	1006	.16	753	316	437	253	99	154	1.9	1.6	1.5	1.7	3.8	3.2	4.2	110
111	Acute yellow atrophy of the liver	236	.04	197	75	122	39	12	27	.4	.4	.4	.5	.6	.4	.7	111
112	Hydatid tumor of the liver	11	‡	9	2	7	2	1	1	†	†	†	†	†	†	†	112
113	Cirrhosis of the liver	8064	1.27	7141	4426	2715	923	574	349	15.0	15.2	20.7	10.6	13.8	18.8	9.6	113
114	Biliary calculi	1591	.25	1467	217	1250	124	36	88	3.0	3.1	1.0	4.9	1.9	1.2	2.4	114
115	Other diseases of the liver	2181	.34	1774	652	1122	407	195	212	4.1	3.8	3.0	4.4	6.1	6.4	5.8	115
116	Diseases of the spleen	77	.01	73	39	34	4	2	2	.1	.2	.2	.1	.1	.1	.1	116
117	Simple peritonitis (nonpuerperal)	1013	.16	700	210	490	313	74	239	1.9	1.5	1.0	1.9	4.7	2.4	6.6	117
118	Other diseases of the digestive system (cancer and tuberculosis excepted)	304	.05	261	121	140	43	16	27	.6	.6	.6	.5	.6	.5	.7	118
119 to 133	NONVENEREAL DISEASES OF THE GENITOURINARY SYSTEM AND ANNEXA	64919	10.22	52818	24602	28216	12101	5335	6766	120.7	112.1	115.0	109.8	180.7	174.8	185.6	119 to 133
119	Acute nephritis	5120	.81	3923	1969	1954	1197	549	648	9.5	8.3	9.2	7.6	17.9	18.0	17.8	119
120	Bright's disease	52067	8.19	43412	20762	22650	8655	4234	4421	96.8	92.2	97.1	88.1	129.2	138.7	121.3	120
121	Chyluria	3	‡	2	——	2	1	1	——	†	†	——	†	†	†	——	121
122	Other diseases of the kidneys and annexa	861	.14	703	302	401	158	86	72	1.6	1.5	1.4	1.6	2.4	2.8	2.0	122
123	Calculi of the urinary passages	322	.05	290	174	116	32	24	8	.6	.6	.8	.5	.5	.8	.2	123
124	Diseases of the bladder	611	.10	461	320	141	150	109	41	1.1	1.0	1.5	.5	2.2	3.6	1.1	124
125	Diseases of the urethra, urinary abscess, etc	202	.03	123	110	13	79	77	2	.4	.3	.5	.1	1.2	2.5	.1	125
126	Diseases of the prostate	1162	.18	928	928	——	234	234	——	2.2	2.0	4.3	——	3.5	7.7	——	126
127	Nonvenereal diseases of the male genital organs	56	.01	35	35	——	21	21	——	.1	.1	.2	——	.3	.7	——	127

‡ Less than .005 per cent.

† Less than .05 per 100,000 exposed.

Int. List No.	Cause of Death.	Number of Deaths.								Death Rates per 100,000 Persons Exposed.							Int. List No.
		Total Experience.		White Lives.			Colored Lives.			Total Experience.	White Lives.			Colored Lives.			
		Number.	Percentage.	Total.	Males.	Females.	Total.	Males.	Females.		Total.	Males.	Females.	Total.	Males.	Females.	
128	Uterine hemorrhage (nonpuerperal)	67	.01	53	—	53	14	—	14	.1	.1	—	.2	.2	—	.4	128
129	Uterine tumor (noncancerous)	1335	.21	705	—	705	630	—	630	2.5	1.5	—	2.7	9.4	—	17.3	129
130	Other diseases of the uterus	786	12	600	—	600	186	—	186	1.5	1.3	—	2.3	2.8	—	5.1	130
131	Cysts and other tumors of the ovary	508	.08	400	—	400	108	—	108	.9	.8	—	1.6	1.6	—	3.0	131
132	Salpingitis and other diseases of the female genital organs	1782	.28	1151	—	1151	631	—	631	3.3	2.4	—	4.5	9.4	—	17.3	132
133	Nonpuerperal diseases of the breast (cancer excepted)	37	.01	32	2	30	5	—	5	.1	.1	†	.1	.1	—	.1	133
134 to 141	THE PUERPERAL STATE	10151	1.60	8359	—	8359	1792	—	1792	18.9	17.7	—	32.5	26.8	—	49.1	134 to 141
134	Accidents of pregnancy	885	.14	712	—	712	173	—	173	1.6	1.5	—	2.8	2.6	—	4.7	134
135	Puerperal hemorrhage	791	.12	681	—	681	110	—	110	1.5	1.4	—	2.6	1.6	—	3.0	135
136	Other accidents of labor	1036	.16	838	—	838	198	—	198	1.9	1.8	—	3.3	3.0	—	5.4	136
137	Puerperal septicemia	4348	.68	3512	—	3512	836	—	836	8.1	7.5	—	13.7	12.5	—	22.9	137
138	Puerperal albuminuria and convulsions	2675	.42	2249	—	2249	426	—	426	5.0	4.8	—	8.7	6.4	—	11.7	138
139	Puerperal phlegmasia alba dolens, embolus, sudden death	369	.06	327	—	327	42	—	42	.7	.7	—	1.3	.6	—	1.2	139
140	Following childbirth (not otherwise defined)	43	.01	36	—	36	7	—	7	.1	.1	—	.1	.1	—	.2	140
141	Puerperal diseases of the breast	4	‡	4	—	4	—	—	—	†	†	—	†	—	—	—	141
142 to 145	DISEASES OF THE SKIN AND CELLULAR TISSUE	1529	.24	1234	632	602	295	134	161	2.8	2.6	3.0	2.3	4.4	4.4	4.4	142 to 145
142	Gangrene	681	.11	526	248	278	155	73	82	1.3	1.1	1.2	1.1	2.3	2.4	2.2	142
143	Furuncle	215	.03	203	133	70	12	3	9	.4	.4	.6	.3	.2	.1	.2	143
144	Acute abscess	360	.06	302	176	126	58	37	21	.7	.6	.8	.5	.9	1.2	.6	144
145	Other diseases of the skin and annexa	273	.04	203	75	128	70	21	49	.5	.4	.4	.5	1.0	.7	1.3	145
146 to 149	DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION	1266	.20	1129	649	480	137	64	73	2.4	2.4	3.0	1.9	2.0	2.1	2.0	146 to 149
146	Diseases of the bones[1]	1109	.17	991	576	415	118	58	60	2.1	2.1	2.7	1.6	1.8	1.9	1.6	146
147	Diseases of the joints[2]	120	.02	106	53	53	14	5	9	.2	.2	.2	.2	.2	.2	.2	147
148	Amputations	6	‡	5	5	—	1	—	1	†	†	†	—	†	—	†	148
149	Other diseases of the organs of locomotion	31	‡	27	15	12	4	1	3	.1	.1	.1	†	.1	†	.1	149

‡ Less than .005 per cent.

[1] Tuberculosis excepted.

† Less than .05 per 100,000 exposed.

[2] Tuberculosis and rheumatism excepted.

TABLE 13—(*Continued*).

NUMBER OF DEATHS, AND DEATH RATES PER 100,000 PERSONS EXPOSED. CLASSIFIED BY COLOR AND BY SEX.

Titles of Detailed International List of Causes of Death.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Int. List No.	Cause of Death.	Number of Deaths.								Death Rates per 100,000 Persons Exposed.							Int. List No.
		Total Experience		White Lives.			Colored Lives.			Total Experience.	White Lives.			Colored Lives.			
		Number.	Percentage.	Total.	Males.	Females.	Total.	Males.	Females.		Total.	Males.	Females.	Total.	Males.	Females.	
	MALFORMATIONS	320	.05	298	177	121	22	15	7	.6	.6	.8	.5	.3	.5	.2	
150	Congenital malformations	320	.05	298	177	121	22	15	7	.6	.6	.8	.5	.3	.5	.2	150
	OLD AGE	3480	.55	2883	994	1889	597	220	377	6.5	6.1	4.6	7.3	8.9	7.2	10.3	
154	Senility	3480	.55	2883	994	1889	597	220	377	6.5	6.1	4.6	7.3	8.9	7.2	10.3	154
155 to 186	AFFECTIONS PRODUCED BY EXTERNAL CAUSES[1]	50712	7.98	42999	31381	11618	7713	5610	2103	94.3	91.3	146.7	45.2	115.2	183.8	57.7	155 to 186
	Suicide (total)	6542	1.03	6057	4309	1748	485	308	177	12.2	12.9	20.1	6.8	7.2	10.1	4.9	
155	By poison	2352	.37	2154	1280	874	198	89	109	4.4	4.6	6.0	3.4	3.0	2.9	3.0	155
156	By asphyxia	1040	.16	1019	633	386	21	14	7	1.9	2.2	3.0	1.5	.3	.5	.2	156
157	By hanging or strangulation	761	.12	732	626	106	29	24	5	1.4	1.6	2.9	.4	.4	.8	.1	157
158	By drowning	316	.05	285	176	109	31	16	15	.6	.6	.8	.4	.5	.5	.4	158
159	By firearms	1519	.24	1362	1210	152	157	129	28	2.8	2.9	5.7	.6	2.3	4.2	.8	159
160	By cutting or piercing instruments	346	.05	319	272	47	27	24	3	.6	.7	1.3	.2	.4	.8	.1	160
161	By jumping from high places	107	.02	96	58	38	11	7	4	.2	.2	.3	.1	.2	.2	.1	161
162	By crushing	33	.01	30	25	5	3	3	—	.1	.1	.1	†	†	.1	—	162
163	Other suicides	68	.01	60	29	31	8	2	6	.1	.1	.1	.1	.1	.1	.2	163
	Accidents, all forms, and unspecified violence[1]	40417	6.36	35294	25924	9370	5123	3710	1413	75.1	74.9	121.2	36.4	76.5	121.6	38.8	
164	Poisoning by food	622	.10	513	265	248	109	45	64	1.2	1.1	1.2	1.0	1.6	1.5	1.8	164
165	Other acute poisonings	1144	.18	990	515	475	154	82	72	2.1	2.1	2.4	1.8	2.2	2.7	2.0	165
166	Conflagration	576	.09	442	257	185	134	62	72	1.1	.9	1.2	.7	2.0	2.0	2.0	166
167	Burns (conflagration excepted)	4714	.74	3938	1545	2393	776	255	521	8.8	8.4	7.2	9.3	11.6	8.4	14.3	167
168	Absorption of deleterious gases[2]	1431	.23	1328	843	485	103	69	34	2.7	2.8	3.9	1.9	1.5	2.3	.9	168
169	Accidental drowning	5757	.90	4971	4310	661	786	708	78	10.7	10.6	20.1	2.6	11.7	23.2	2.1	169

[1] Includes war deaths (1,149).

[2] Conflagration excepted.

† Less than .05 per 100,000 exposed.

Irt. List No.	Cause of Death.	Number of Deaths.								Death Rates per 100,000 Persons Exposed.							Int. List No.
		Total Experience.		White Lives.			Colored Lives.			Total Experience.	White Lives.			Colored Lives.			
		Number.	Percentage.	Total.	Males.	Females.	Totals.	Males.	Females.		Total.	Males.	Females.	Total.	Males.	Females.	
170	Traumatism by firearms	1029	.16	726	637	89	303	248	55	1.9	1.5	3.0	.3	4.5	8.1	1.5	170
171	Traumatism by cutting or piercing instruments	93	.01	66	51	15	27	21	6	.2	.1	.2	.1	.4	.7	.2	171
172	Traumatism by fall	6917	1.09	6318	4021	2297	599	405	194	12.9	13.4	18.8	8.9	8.9	13.3	5.3	172
A173	Traumatism in mines	612	.10	508	505	3	104	104	—	1.1	1.1	2.4	†	1.6	3.4	—	A173
B173	Traumatism in quarries	48	.01	41	40	1	7	7	—	.1	.1	.2	†	.1	.2	—	B173
174	Traumatism by machines	905	.14	752	720	32	153	148	5	1.7	1.6	3.4	.1	2.3	4.8	.1	174
	Traumatism by other crushing:																
A175	Railroad accidents and injuries	4485	.71	3899	3598	301	586	527	59	8.3	8.3	16.8	1.2	8.7	17.3	1.6	A175
B175	Street car accidents and injuries	1600	.25	1442	1130	312	158	124	34	3.0	3.1	5.3	1.2	2.4	4.1	.9	B175
C175	Automobile accidents and injuries	2507	.39	2322	1737	585	185	139	46	4.7	4.9	8.1	2.3	2.8	4.6	1.3	C175
D175	Injuries by other vehicles	1658	.26	1468	1226	242	190	170	20	3.1	3.1	5.7	.9	2.8	5.6	.5	D175
E175	Landslide, other crushing	381	.06	319	299	20	62	58	4	.7	.7	1.4	.1	.9	1.9	.1	E175
176	Injuries by animals	233	.04	198	188	10	35	35	—	.4	.4	.9	†	.5	1.1	—	176
177	Starvation	16	‡	13	7	6	3	2	1	†	†	†	†	†	.1	†	177
178	Excessive cold	217	.03	155	128	27	62	45	17	.4	.3	.6	.1	.9	1.5	.5	178
179	Effects of heat	1247	.20	1056	720	336	191	132	59	2.3	2.2	3.4	1.3	2.9	4.3	1.6	179
180	Lightning	96	.02	82	71	11	14	14	—	.2	.2	.3	†	.2	.5	—	180
181	Electricity (lightning excepted)	452	.07	429	421	8	23	20	3	.8	.9	2.0	†	.3	.7	.1	181
185	Fractures (cause not specified)	806	.13	730	414	316	76	57	19	1.5	1.5	1.9	1.2	1.1	1.9	.5	185
186	Other external violence[1]	2871	.45	2588	2276	312	283	233	50	5.3	5.5	10.6	1.2	4.2	7.6	1.4	186
	War deaths	1149	.18	1144	1130	14	5	5	—	2.1	2.4	5.3	.1	.1	.2	—	
	Homicide (total)	3753	.59	1648	1148	500	2105	1592	513	7.0	3.5	5.4	1.9	31.4	52.2	14.1	
182	By firearms	2435	.38	983	691	292	1452	1132	320	4.5	2.1	3.2	1.1	21.7	37.1	8.8	182
183	By cutting or piercing instruments	616	.10	210	167	43	406	297	109	1.1	.4	.9	.2	6.1	9.7	3.0	183
184	By other means	702	.11	455	290	165	247	163	84	1.3	1.0	1.4	.7	3.7	5.3	2.3	184
187 to 1 9	ILL-DEFINED DISEASES	5448	.86	4095	2591	1504	1353	731	622	10.1	8.7	12.1	5.9	20.2	24.0	17.1	187 to 189
187	Ill-defined organic disease	261	.04	115	46	69	146	64	82	.5	.2	.2	.3	2.2	2.1	2.2	187
188	Sudden death	131	.02	113	59	54	18	7	11	.2	.2	.3	.2	.3	.2	.3	188
189	Cause of death not specified or ill-defined	5056	.80	3867	2486	1381	1189	660	529	9.4	8.2	11.6	5.4	17.8	21.6	14.5	189

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[1] Includes war deaths (1,149).

‡ Less than .005 per cent.

† Less than .05 per 100,000 exposed.

The remainder of this report will be concerned with a detailed consideration of the more important diseases and conditions which appear in this experience. These will be taken up in the order of their numerical importance. At this point we need point out only that, as in most other experiences, a few conditions account for the larger part of the mortality. Tuberculosis (all forms), for example was responsible for 17.4% of all the deaths. This title was followed by "organic diseases of the heart" with 11.9%; by pneumonia (all forms), with 9.1%; and by Bright's disease with 8.2% of all the deaths. The entire group of "external causes," of which accidents form the largest part, was responsible for 8.0%. Together these five principal disease groups accounted for 54.6% of the total mortality. In addition, we may mention cancer (all forms) with 5.9% of the deaths, cerebral hemorrhage and apoplexy with 5.8% and the four communicable diseases of childhood, namely, measles, scarlet fever, whooping cough and diphtheria, which, together, accounted for 4.0%. These, added to the figure already noted, bring the total up to 70.3% of all the deaths. We shall now consider each of the conditions in the order named, and shall add a number of others which seem to be of sufficient value to merit discussion because of their great interest to medical science or because they throw light on the vital phenomena of wage earners and their families.

CHAPTER IV.

TUBERCULOSIS.

Notwithstanding the great development in America of the campaign against tuberculosis, detailed statistics of mortality from this condition are not as yet available for the general population in a manner suitable for the purposes either of intensive study or of practical health work. The present collection of data of mortality from tuberculosis among wage earners presenting the facts in full for color, sex and age, constitutes therefore an important contribution to the literature on the subject. The value of these figures is commensurate with the gravity of the condition. For not only is tuberculosis the first cause of death as to incidence among wage earners and their families, but mortality from this cause is most pronounced at a time in life when there is still considerable expectation remaining to each individual and when death seriously disrupts family life. The economic losses thus entailed are still further augmented by the long periods of physical disability which usually precede the fatal termination. Tuberculous disease is clearly the chief burden upon the vital resources of wage earners and their families. The figures we present, it is hoped, will become a point of departure for further inquiry into the possible effect of environmental and other factors which condition the physical welfare of the great mass of the wage earning population.

Tuberculosis in all its forms accounted for 110,363 deaths or 17.4% of the 635,449 deaths in the entire Industrial mortality experience for the six year period, 1911 to 1916. The deaths cover a number of conditions which are clearly distinguishable according to the main organs or parts of the body affected by the tuberculous infection. The following table shows the number of deaths resulting from each of the several forms of tuberculosis as distinguished in the nomenclature of the International List:

TABLE 14.

MORTALITY FROM TUBERCULOSIS, SPECIFIED ACCORDING TO ORGANS OR PARTS AFFECTED. DEATHS, AND DEATH RATES PER 100,000 PERSONS EXPOSED.

All Color and Sex Groups Combined.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Organ or Part Affected.	All Color and Sex Groups in Mortality Experience.			
	No. of Deaths.	Percentage of Total, All Causes.	Percentage of Total Tuberculosis.	Rate per 100,000 Exposed.
Tuberculosis—all forms	110,363	17.4	100.0	205.1
Tuberculosis of the lungs	93,526	14.7	84.7	173.9
Acute miliary tuberculosis	6,380	1.0	5.8	11.9
Tuberculous meningitis	4,647	.7	4.2	8.6
Abdominal tuberculosis	3,155	.5	2.9	5.9
Pott's disease	866	.1	.8	1.6
White swellings	573	.1	.5	1.1
Tuberculosis of other organs	959	.2	.9	1.8
Disseminated tuberculosis	257	†	.2	.5

† Less than .05 per cent.

Considered according to organs or parts affected, tuberculosis of the lungs was the chief form of the disease, accounting for 84.7% of all the deaths from tuberculosis. The rate of mortality was 173.9 per one hundred thousand exposed. In the discussion of tuberculosis of the lungs to follow, we shall accept the practice of the Abridged International List of Causes of Death and shall include with this form of tuberculosis, the deaths from acute miliary tuberculosis, of which there were 6,380 recorded during the six year period of this investigation. Considering these two forms together as tuberculosis of the lungs, this disease was responsible for 15.7 per cent. of the deaths from all causes and 90.5 per cent. of the deaths from all forms of tuberculosis. A rate of 185.7 per one hundred thousand exposed is registered. The only other forms of tuberculosis of numerical importance in this mortality experience were tuberculous meningitis and abdominal tuberculosis, which assume considerable importance at certain periods of life.

The above picture is a composite covering both races and sexes and all age periods of life. Our very first analysis, however, indicates that this composite reduces itself into a number of varying elements. Thus, we find that the colored have a much higher incidence than the white policyholders, that the rates for the males exceed those for females, and finally, that the figures for each main color and sex class vary markedly with age. The first five year period of life presents a comparatively high rate. This drops to the minimum between 5 and 9 years. With the next period, 10 to 14 years, the figures mount again and increase continuously to their maximum which is attained between 35 and 44 years, among males and somewhat earlier among females. The rates then decline rapidly with advancing age. These facts are presented in the following table:

TABLE 15.

MORTALITY FROM TUBERCULOSIS, ALL FORMS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	205.1	211.9	147.3	430.0	385.1
1 to 4.......	90.7	78.4	76.5	269.2	268.4
5 to 9.......	37.6	26.3	29.3	135.2	152.5
10 to 14......	46.4	19.0	38.5	145.8	277.5
15 to 19......	165.0	98.5	144.5	420.7	621.3
20 to 24......	287.8	243.8	238.0	584.4	643.9
25 to 34......	344.4	385.8	252.2	568.9	488.6
35 to 44......	360.4	540.4	215.2	570.1	349.9
45 to 54......	279.6	463.5	147.8	465.1	243.9
55 to 64......	237.2	365.5	139.1	438.8	198.9
65 to 74.....	196.0	268.2	140.3	342.4	175.0
75 and over ...	177.7	197.2	151.5	315.5	245.0

This marked variation with age and especially the presence of two modal points of incidence, namely in infancy and in adult life, suggest that we are concerned with heterogeneous material. In fact we know that the variations result in large part from the inclusion in our figures of the several forms of tuberculosis which affect the age periods very differently. It will be more instructive, therefore, in our further analysis to consider each of the chief forms of tuberculosis separately. We shall discuss first the data for tuberculosis of the lungs, follow with tuberculous meningitis and abdominal tuberculosis and close with a brief reference to the few remaining titles included in our main group.

TUBERCULOSIS OF THE LUNGS.

It will be understood that this title includes the deaths under the title as such and also the group of deaths assigned to acute miliary tuberculosis, i. e., titles Nos. 28 and 29 of the International List together.

A total of 99,906 deaths is reported under this head corresponding to a death rate of 185.7 per 100,000 in the six years, 1911 to 1916. In view of the fact that 90.5% of the total tuberculosis deaths are thus covered, we may expect that many of the color, sex and age characteristics observed for all forms of tuberculosis will again be in evidence—but we shall note also some variations. The following table presents the death rates per 100,000 exposed for tuberculosis of the lungs, grouped according to the color, sex and age classes represented in our data:

TABLE 16.

MORTALITY FROM TUBERCULOSIS OF THE LUNGS,* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over...........	185.7	193.7	131.5	391.2	348.5
1 to 4.......	26.3	17.0	18.2	135.2	152.3
5 to 9.......	16.2	7.7	11.1	79.3	99.1
10 to 14......	33.9	9.8	28.5	110.4	232.4
15 to 19......	150.5	87.7	133.7	377.8	572.7
20 to 24......	273.4	232.9	226.2	547.6	608.0
25 to 34......	330.1	373.3	241.2	541.2	461.8
35 to 44......	345.4	527.1	203.5	542.7	322.3
45 to 54......	267.3	450.6	137.8	444.0	226.1
55 to 64......	221.1	345.0	128.5	408.2	175.2
65 to 74......	178.7	250.0	126.2	309.0	146.8
75 and over ...	156.1	180.2	127.2	301.8	217.8

* Includes "tuberculosis of the lungs," title 28, and "acute miliary tuberculosis," title 29 of the International List.

It will be seen that the group of colored persons in this experience shows a pulmonary tuberculosis death rate at all ages, one and over, between two and two and one-half times that of white persons. Colored males, for instance have a tuberculosis death rate at all ages which is 202.0 per cent. that of white males; colored females show a tuberculosis death rate 265.0 per cent. that of the white female rate. These figures vary markedly when considered by age; in fact, the most instructive relations between the two races are thus brought to light. One interesting feature is the comparatively early age at which the maximum death rate is found among the negroes, namely, between 20 and 24 years. Among white males, the maximum is reached between 35 and 44 years, and among white females, between 25 and 34 years. As will be observed in the table above, the mortality from tuberculosis of the lungs among colored males at the age period 5 to 9 years is over ten times as great as among white males at that age. Between the ages 10 and 14 years, the colored male rate for tuberculosis of the lungs is over eleven times that for white males. Among colored females under 15 years of age, the excess of mortality for tuberculosis of the lungs over the figures for white females is also very great, being over eight times as high in each five-year period. It is of more than ordinary interest to indicate that between the ages 45

TABLE 17.

MORTALITY FROM TUBERCULOSIS OF THE LUNGS.*

Percentage, Colored of White Death Rates for Each Sex, Classified by Age Period. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Percentage, Colored of White Mortality.	
	Male.	Female.
All ages—one and over	202.0	265.0
1 to 4	795.3	836.8
5 to 9	1029.9	892.8
10 to 14	1126.5	815.4
15 to 19	430.8	428.3
20 to 24	235.1	268.8
25 to 34	145.0	191.5
35 to 44	103.0	158.4
45 to 54	98.5	164.1
55 to 64	118.3	136.3
65 to 74	123.6	116.3
75 and over	167.5	171.2

* Includes "tuberculosis of the lungs," title 28, and "acute miliary tuberculosis," title 29 of the International List.

and 54 the death rate from tuberculosis of the lungs among colored males was slightly less than that recorded for white males. The maximum percentage of excess of colored mortality from tuberculosis of the lungs over the figures for white persons occurred in the age period 10 to 14 years for males and 5 to 9 years for females. There is at present no explanation at hand as to why this excess of colored over white mortality from tuberculosis of the lungs should be so great at the periods of early life and so much smaller in later years.

The preceding table presents a picture of the relative incidence of pulmonary tuberculosis among white and colored persons.

The Death Rate of Pulmonary Tuberculosis according to Sex.

The second main classification of these data will be made according to sex. As is to be noted in Table 16, the differences in the rates of the two sexes were very marked indeed, the degree of difference varying somewhat for each of the two races. The following table exhibits the ratio of the male to the female death rate at each age period for the two color classes of this experience:

TABLE 18.

MORTALITY FROM TUBERCULOSIS OF THE LUNGS.*

Percentage, Male of Female Death Rates for Each Color or Race Group, Classified by Age Period.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Age Period.	Percentage, Male of Female Mortality.	
	White.	Colored.
All ages—one and over.......	147.3	112.3
1 to 4................	93.4	88.8
5 to 9................	69.4	80.0
10 to 14...............	34.4	47.5
15 to 19...............	65.6	66.0
20 to 24...............	103.0	90.1
25 to 34...............	154.8	117.2
35 to 44...............	259.0	168.4
45 to 54...............	327.0	196.4
55 to 64...............	268.5	233.0
65 to 74...............	198.1	210.5
75 and over...........	141.7	138.6

* Includes "tuberculosis of the lungs," title 28, and "acute miliary tuberculosis," title 29 of the International List.

Considering all ages one and over together, the ratio of white male to white female mortality is 147.3, which means an excess of nearly one half. The excess in the rate of colored males over colored females is only 12.3%. In both races, however, the picture is a shifting one when we introduce the factor of age period. Thus under age 20 for the whites and under age 25 for the colored, the male rate for pulmonary tuberculosis is considerably lower than that for females. In fact between the ages 10 and 14 years the rate for white males is over 65% more favorable than that for white females. Beginning with the age period 20 to 24 years, however, mortality from tuberculosis of the lungs among white males is, at every age period, in excess of the figures for white females. The maximum percentage of difference is found in the age period 45 to 54 years where the white male rate is over 3¼ times that for the white females. For the group of colored persons, beginning with the age period 25 to 34 years, the death rates from tuberculosis of the lungs for males exceed those for females in marked degree. The percentage of male excess under the age of 65 is not as great for colored lives as for white lives.

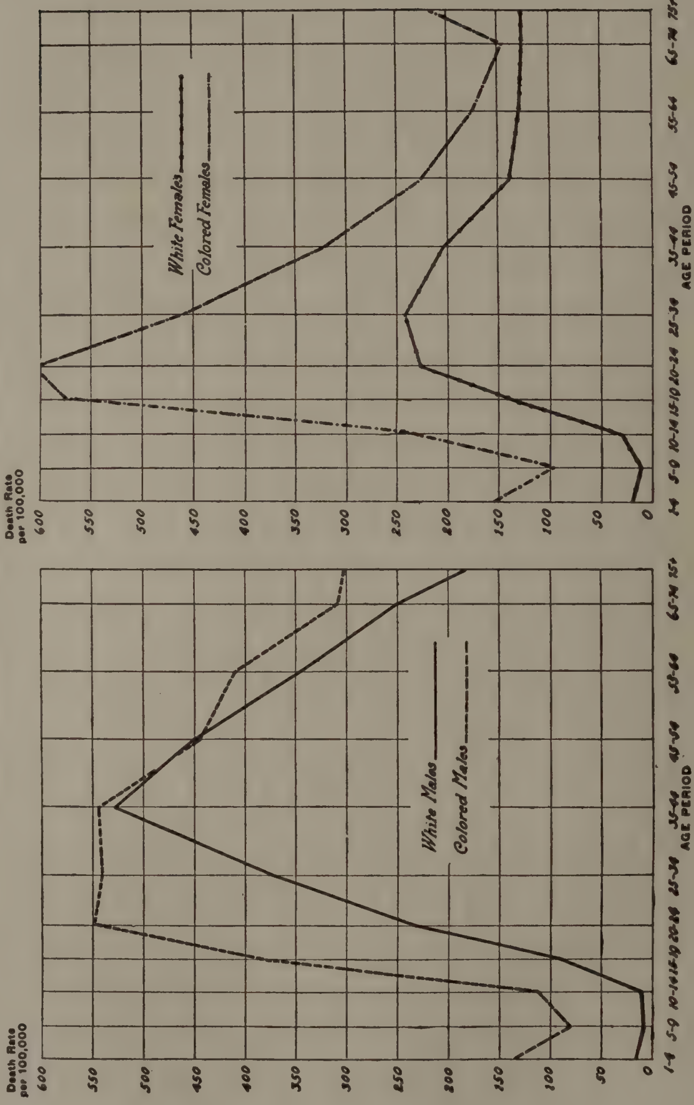
The figures themselves suggest no clue toward an explanation of the remarkable differences prevailing in the rates for pulmonary tuberculosis among boys and girls of both races. At these younger ages, conditions of life are very much the same, and it is difficult to understand what factors can be at work unless they be the differing inherent physical characteristics of the two sexes.

The following graph shows clearly the incidence of pulmonary tuberculosis in each of the age periods of our main groups, namely, white males, white females, colored males and colored females. It will be observed that the curves in each instance show a local maximum or modal point at the earliest age period, namely, one to four. The lowest point is attained in the next age period. Thereafter, a distinctly different contour is observed in each of the four curves. That for white males is the most symmetrical of all, showing one modal point between 35 and 44 years of age. Colored males, on the other hand, present an asymmetrical distribution with two modal points, one at 20 to 24 years and the other at 35 to 44 years. A further irregularity is observed at the period 55 to 64 years. The curves for the females are both skew, and are also characterized by the early age at which the maximum incidence is attained. Of

Chart IV.—MORTALITY FROM TUBERCULOSIS OF THE LUNGS

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



the two, the colored females show a much more symmetrical distribution of the rates by age.

These graphs recall those which Dr. Brownlee has presented for certain geographical areas and occupation groups in his analysis of the incidence of pulmonary tuberculosis in Great Britain.* Our curve for white males corresponds very closely with that for males of London, where the middle age type of pulmonary tuberculosis prevails. The colored males, on the other hand, present a picture not very different from that described by Brownlee for Ireland, where the young adult type of pulmonary tuberculosis prevails. This is even more marked among the colored females, where the young adult type prevails with very little admixture of the middle age type. The curve for the white females recalls nothing in the presentation by Dr. Brownlee but seems to be an admixture of all three types. We are not inclined, however, to consider these graphs a verification of the hypothesis of Brownlee, which was that there are three types of tuberculosis; one causes death among the young, the second affects middle ages chiefly, the third type affects persons in old age. Our purpose is only to show that the same conditions which that writer found in Great Britain are repeated here, whatever may be the ultimate explanation for the irregular distributions which are found to characterize the death rates from pulmonary tuberculosis in the several color and sex classes.

Comparison of Rates with Those of the Expanding Registration Area.

We wish now to present some comparative data for the incidence of tuberculosis of the lungs among the group of insured white wage earners and the entire population of the expanding Registration Area of the United States. In the first instance our data relate to observations in the period 1911 to 1916 and in the second or population group, the period of observation is 1910 to 1915. This minor difference in the years covered by the two studies does not materially affect the comparison. The following table gives the death rates per 100,000:

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* "Certain Considerations Regarding the Epidemiology of Phthisis Pulmonalis," *Public Health*, March, 1916, London.

TABLE 19.

MORTALITY FROM TUBERCULOSIS OF THE LUNGS.*

Death Rates Per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over	193.7	147.9	131.0	131.5	116.7	112.7
1 to 4	17.0	24.3	70.0	18.2	23.6	77.1
5 to 9	7.7	9.8	78.6	11.1	12.7	87.4
10 to 14	9.8	13.3	73.7	28.5	31.6	90.2
15 to 19	87.7	81.6	107.5	133.7	116.5	114.8
20 to 24	232.9	167.6	139.0	226.2	181.2	124.8
25 to 34	373.3	207.4	180.0	241.2	189.7	127.1
35 to 44	527.1	237.9	221.6	203.5	153.8	132.3
45 to 54	450.6	232.2	194.1	137.8	117.2	117.6
55 to 64	345.0	231.5	149.0	128.5	122.3	105.1
65 to 74	250.0	205.5	121.7	126.2	147.1	85.8
75 and over	180.2	160.0	112.6	127.2	140.7	90.4

* Includes "tuberculosis of the lungs," title 28, and "acute miliary tuberculosis," title 29 of the International List.

The foregoing data indicate that among insured white males, all ages one and over, the mortality from tuberculosis of the lungs was 31% higher than among all males of the general population (excluding under one year of age). Females in the families of wage earners showed an excess of only 13%. It is of the greatest interest, however, to discover that in the ages of childhood, that is, under 15, for each sex, the death rate for this condition was lower among those in the insured white group than among those in the general population. The advantage in favor of the male children of wage earners was even greater than that discovered for female children. Thus between the ages 10 and 14 years, the mortality rate from tuberculosis of the lungs among males in the insured white group was 26.3% less than in the general population. The advantage in favor of insured female children for the same age period was only 9.8% when compared with the rate for female children in the general population. It is difficult to say to what this favorable showing for pulmonary tuberculosis among the insured may be due, but two factors undoubtedly play an important part. The first is the fact that we are comparing white insured children with a mixture of white and colored children in the Registration Area. Although the proportion of colored in this population group is small, the effect of their inclusion on the tuberculosis rate may be considerable because of the extraordinarily high rates for this condition which prevail among colored children. Unfortunately, it is impossible to eliminate the small proportion of the colored from the data of the Registration Area. The second factor is one of medical selection which results in eliminating a certain number of children of obviously poor physique from the insurance experience. Such children would later appear in the mortality experience of the Registration Area but would not affect the records of the insurance company. It is not possible to estimate at the present time the exact weight of these two factors. But in any case it is a matter of great interest that the children of wage earners, who reside in cities and are undoubtedly more exposed to infection and to the hardships incident to their economic stratum, should show no higher rates from pulmonary tuberculosis than children in the general population, of whom about one-half reside in rural areas where the rate from pulmonary tuberculosis is usually lower than in cities.

Beginning with the age period 15 to 19 years and continuing up to age 64 years for females and up to and beyond age 75 for males, the mortality rates for tuberculosis of the lungs among insured white persons were greater than the death rates for this disease in the general population of the Registration Area. Thus from 15 to 19 years the rate for tuberculosis of the lungs among male wage earners was 7.5% and the rate among females in wage earning families was 14.8% in excess of the corresponding rates recorded at the same period in the general population. Between 20 and 24 years of age, male wage earners show an excess of 39%; between 25 and 34 years an excess of 80%; between 35 and 44 years an excess of 121.6%. Among females the excess of mortality from tuberculosis of the lungs among wage earners increases gradually up to the period 35 to 44 years. Thereafter the percentage of excess mortality decreases until age 65. In the two highest age periods, the insured white females show lower death rates than females of the general population.

The following table presents an interesting set of ratios showing the relative sex distribution of mortality from pulmonary tuberculosis, by age, among Industrial policyholders and the population of the Registration Area.

TABLE 20.

MORTALITY FROM TUBERCULOSIS OF THE LUNGS.*

Percentage, Male of Female Death Rates Per 100,000 Persons Exposed. Classified by Age Period. White Lives, Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916 and General Population of Expanding Registration Area of the United States, 1910 to 1915.

Age Period.	Percentage, Male of Female Rate.	
	M. L. I. Co. White Lives, 1911 to 1916.	Exp. Reg. Area, U. S. 1910 to 1915.
All ages—one and over	147.3	126.7
1 to 4	93.4	103.0
5 to 9	69.4	77.2
10 to 14	34.4	42.1
15 to 19	65.6	70.0
20 to 24	103.0	92.5
25 to 34	154.8	109.3
35 to 44	259.0	154.7
45 to 54	327.0	198.1
55 to 64	268.5	189.3
65 to 74	198.1	139.7
75 and over	141.7	113.7

* Includes "tuberculosis of the lungs," title 28, and "acute miliary tuberculosis," title 29 of the International List.

This table shows that for the ages between 5 and 20 years males show a more favorable mortality from tuberculosis of the lungs than do females at the same age periods. The difference in favor of insured males was even greater than for males in the general population. Thus between 5 and 9 years, male mortality from tuberculosis of the lungs in wage earning families was 69.4% of the mortality among females; the corresponding ratio for the general population was only 77.2%. For the next higher age period, 10 to 14 years, the advantage in favor of males is even greater than before. For the insured experience, males had a rate only 34.4% of the female rate, while for the general population the male rate was 42.1% of the female rate. Between 15 and 19 years the ratio for wage earning families was 65.6% and for the general population 70.0%. It would be interesting if we knew first, why males under 20 years of age show nearly uniformly a lower mortality from tuberculosis of the lungs than do females, and second, why this advantage should be more pronounced among male wage earners than among males in the families of the general population of the United States. Beginning with the age period 20 to 24 years, however, the excess of male over female mortality for tuberculosis of the lungs was greater in wage earning families than in the general population of the expanding Registration Area of the United States. The foregoing ratios suggest a number of interesting inquiries for future investigation.

The Downward Trend of Mortality from Tuberculosis of the Lungs.

In the introductory section of this report, it was pointed out that the mortality experience of the insured wage earners had declined very appreciably during the six year period covered by this study. This decline has been effected primarily through the reduction in the incidence of a number of the more important causes of death. Pulmonary tuberculosis is one of these. In fact, the decline in the death rate from this condition has been more marked in this insurance experience than that from any other single condition of numerical importance. The following table is presented to show the trend of mortality for each of the years since 1911. It will be observed that the decline has continued generally throughout the entire period.

TABLE 21.

MORTALITY FROM TUBERCULOSIS OF THE LUNGS,* CLASSIFIED BY COLOR AND BY SEX.

Death Rates Per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

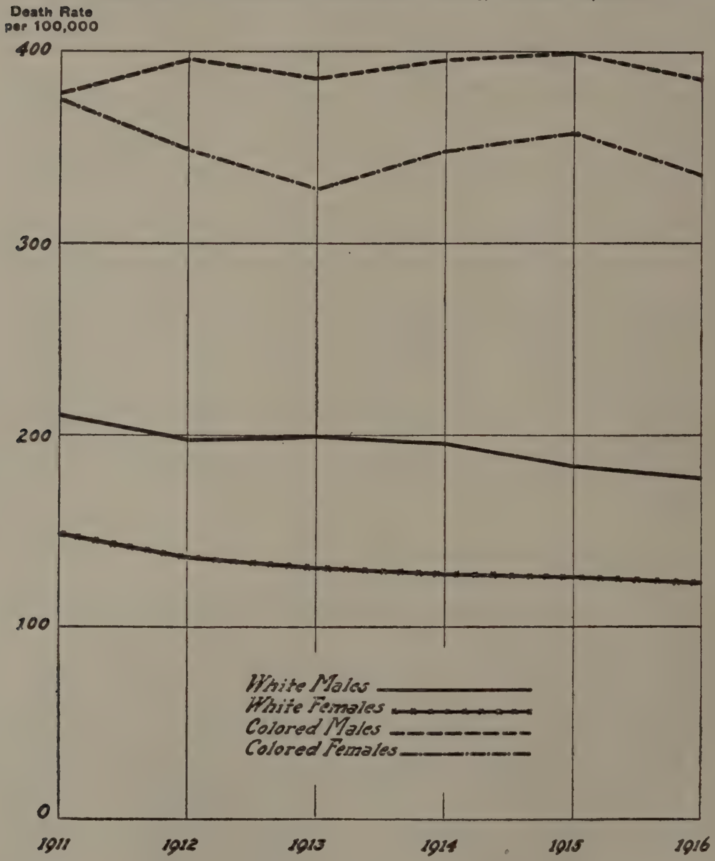
Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	185.7	193.7	131.5	391.2	348.5
1916.........	172.8	178.1	122.8	386.8	336.8
1915.........	180.0	184.0	127.3	399.9	357.0
1914.........	185.3	197.4	127.5	396.8	347.8
1913.........	186.6	200.0	130.7	387.0	328.9
1912.........	191.6	198.2	137.3	397.3	348.0
1911.........	203.0	210.4	148.4	378.7	375.1

* Includes "tuberculosis of the lungs," title 28, and "acute miliary tuberculosis," title 29 of the International List.

Chart V.—Mortality from Tuberculosis of the Lungs

Death Rates per 100,000 Persons Exposed By Single Years 1911 to 1916

Experience of Metropolitan Life Insurance Company, Industrial Department



The decline in the death rate from pulmonary tuberculosis shown in the above table, especially for white lives, is more pronounced than that to be noted for the general population in the Registration Area. In fact, the acceleration in the decline of the tuberculosis rate among wage earners is tending rapidly to close the gap which still exists between the death rates for pulmonary tuberculosis among wage earners and in the general population. This is indicated by the fact that in 1911 the excess of the Metropolitan rate for white lives over that for the white mortality experience in the Registration Area was 40.1%, whereas in 1916 this excess was reduced to 33.8%. Chart V, on page 56, gives a graphic view of these facts.

More instructive figures indicating the nature of the decline in the death rate for pulmonary tuberculosis are those which show the conditions for each race and sex at each age period of life. For by this means, we can localize the groups of the insured where the greatest improvement has occurred, where the improvement is not so great, and where no improvement has occurred at all. For the purpose of this comparison we shall take as our starting point the experience of the two years 1911 and 1912 combined and contrast them with the corresponding facts for the two years 1915 and 1916. The variations which sometimes characterize the experience of a single year are in this way reduced. The table on page 58 presents the ratios between the experience of 1915 and 1916 combined and that for 1911 and 1912 combined, for each one of the groups which compose this experience.

The total experience shows a reduction of 10.6% which is a remarkable decrease for a short period of years. The most pronounced reduction appears for the group of white females although the improvement among white males is only slightly less, the percentages of decline being 12.4 and 11.3 respectively. In the Registration Area between 1911 and 1915 the per cent. decline for males was 5.4 and for females 10.2. Among the colored in the insured experience the picture is not so encouraging; for among the males a slight increase in the rate is found and among the females a decrease of but 4%.

It is difficult to observe any definite law in the amount of reduction in the pulmonary tuberculosis rate in relation to age groups, the figures varying so with age period. Among white lives there is considerable improvement in the period of childhood after age five

TABLE 22.

MORTALITY FROM TUBERCULOSIS OF THE LUNGS.*

Percentage, Death Rate Per 100,000 Exposed in 1915–1916 of Death Rate in 1911–1912 Classified by Color, Sex and by Age Period.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Percentage, 1915-1916 Rate of 1911-1912 Rate in Specified Age Period.				
	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over...........	89.4	88.7	87.6	101.3	96.0
1 to 4........	88.0	101.8	98.9	86.0	88.2
5 to 9........	85.5	88.6	94.6	92.7	92.4
10 to 14.......	93.4	90.5	92.7	103.8	104.4
15 to 19.......	91.2	78.3	96.6	101.2	102.9
20 to 24.......	84.3	79.8	87.5	91.6	92.7
25 to 34.......	85.1	82.5	82.0	101.8	96.5
35 to 44.......	88.5	89.7	83.2	103.7	87.9
45 to 54.......	95.6	101.1	89.5	88.9	109.0
55 to 64.......	97.6	99.0	94.7	106.6	103.5
65 to 74.......	92.5	98.1	84.2	93.9	112.9
75 and over ...	94.5	115.4	73.6	216.5	91.2

* Includes "tuberculosis of the lungs," title 28, and "acute miliary tuberculosis," title 29 of the International List.

and in early adult life. That is true for both sexes. Beginning with age 15 the improvement becomes more marked among white males. In fact, the greatest reduction of any is to be noted between the ages 15 and 24 years. Between 25 and 44 years favorable conditions are also noted for both white males and females. Thereafter, the picture is very confusing with a general indication of a stationary death rate for the years covered by the study.

Among the colored, we find a substantial saving in mortality under age 10. Between 10 and 19 years the rates show slight increases. Between 20 and 25 years there is again a noticeable decrease but thereafter the prevailing condition is one of increase more or less variable according to age. On the whole, the figures among colored females are more encouraging than those recorded for colored males. But even for this sex certain age periods, such as 10 to 14 years and 45 to 54 years, show substantial increases. The present condition of the evidence does not allow safe prejudgment of the tendency of the death rate among the colored. Perhaps with the accumulation of data in future years a more definite tendency may be established.

There is distinct cause for encouragement in the main findings of our inquiry into these facts of tuberculosis mortality according to age period. If the rate of 1911 had continued into 1916, the number of deaths from pulmonary tuberculosis among policyholders of this Company would have been 20,659 instead of the 17,590 which actually occurred, a saving of 3,069 lives. We have seen, moreover, that the greatest relative decline in the tuberculosis death rate has occurred at those age periods where the rates are highest and when life is most valuable to the community.

The favorable aspect of this tuberculosis experience in adult life may be the cumulative effect of all phases of public health and specialized anti-tuberculosis work of the past twenty years. It is perhaps true that the greatest results have been obtained through preventive work in behalf of children. Certainly these various efforts have tended to increase the vital resistance of children and have also changed favorably the circumstances which control the infection of young people.

Tuberculous Meningitis.

This form of the disease is second only in importance to pulmonary tuberculosis. Indeed, in the ages of childhood under age 10, tuberculous meningitis is the chief form of tuberculosis. Included in this tabulation of deaths are fatal cases of tuberculosis of the brain and of the cerebrospinal meninges. In all, 4,647 such deaths were reported in the six year period between 1911 and 1916. Of these deaths, 2,324 or fifty per cent. occurred in the age period one to four years. A little more than one-fifth of the cases were between five and nine years of age. Beginning with age ten, the number of deaths is small, although not unworthy of consideration. The table on page 60 shows the experience for tuberculous meningitis according to color, sex and age class.

It should be recalled again that the first age period, one to four, does not include infants under one, in which age the highest death rates from tuberculous meningitis occur. Thus, in the population generally, between one-fourth and one-fifth of all the deaths from this disease occur in the first year of life. On the other hand, the death rate in the second year of life when the insurance experience begins is not much lower than in the first. Such comparisons as we shall make with the population figures will, of course, be limited to the comparable age period over one and under five years.

TABLE 23.

Mortality from Tuberculous Meningitis, Classified by Color, Sex and by Age Period.

Death Rates Per 100,000 Persons Exposed. 1911 to 1916.
Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over...........	8.6	9.1	7.7	11.7	9.7
1 to 4........	51.5	48.8	49.1	87.8	83.8
5 to 9........	13.8	12.5	13.0	26.3	25.3
10 to 14.......	5.4	4.5	4.9	10.1	14.6
15 to 19.......	4.3	3.6	4.4	9.9	4.7
20 to 24.......	3.4	2.7	3.4	7.2	4.0
25 to 34.......	2.6	3.0	2.0	3.9	3.1
35 to 44.......	2.5	3.0	1.7	4.2	3.4
45 to 54.......	1.5	1.9	1.1	1.6	2.9
55 to 64.......	1.6	2.1	1.0	1.8	3.1
65 to 74.......	1.3	.9	1.5	1.7	1.2
75 and over ...	1.4	1.4	1.7	——	——

During the six year period, deaths from tuberculous meningitis were recorded at a rate of 8.6 per one hundred thousand persons exposed. This crude rate is very low when compared with the rate for pulmonary tuberculosis, because the deaths are concentrated at the early ages and the exposure includes all ages. Our analysis will be significant, therefore, only as we limit ourselves to very definite age periods, in fact, to those under fifteen; thereafter, tuberculous meningitis is of no very great account as a cause of death. The death rate is highest for colored males and least for white females. There is no very marked difference between the two sexes of each color, although males have a somewhat higher rate than females, especially between twenty-five and sixty-five years among the whites, and fifteen and forty-five years among the colored. The death rates, beginning with the maximum point under five years of age, decrease regularly with age up to and including ages forty-five to fifty-four years. There is a somewhat fluctuating experience thereafter. Practically the same form of curve is observed for each of the color and sex classes in this experience.

A comparison of the death rates for this condition with those prevailing in the Registration Area should be limited to the ages under fifteen, where the death rates for tuberculous meningitis are really significant. Under age ten, the children of white wage earners show a somewhat higher mortality rate than do children at the same ages in the population of the expanding Registration Area of the United States. This is true for each sex. Some part of the excess may be due to better registration of the disease among insured children than in the general population. Our system of inquiry into causes of death results in adding materially to the total number of deaths from tuberculous meningitis, for such reports as "meningitis" are always returned to physicians for additional information. It should be recalled that a net increase of fourteen per cent. in the number of deaths recorded for "tuberculous meningitis" was produced by this system of inquiry over the number which would have been recorded had the method of querying physicians not been adopted. The age period ten to fourteen years shows almost identical rates in the population and among the insured. The following table presents a comparison of the death rates for a few significant age periods for insured lives as well as those of the general population of the expanding Registration Area:

TABLE 24.

Mortality from Tuberculous Meningitis.

Death Rates Per 100,000 Persons Exposed. Classified by Sex and by Age Period.

Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.		Females.	
	M. L. I. Co. (White).	U. S. Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.
1 to 4	48.8	41.9	49.1	40.0
5 to 9	12.5	10.8	13.0	10.7
10 to 14..............	4.5	4.5	4.9	5.0

Like pulmonary tuberculosis, tuberculous meningitis shows a very favorable trend in its incidence during recent years. In the age period one to four years the rate for white males for the two years 1911 and 1912 was 51.5 and, for 1915 and 1916 combined, it was only 46.0 per one hundred thousand. The per cent. decline was, therefore, 10.7. The greatest decline among the insured appears to have occured among white females, where the rate for 1915 and 1916 was 18.0 per cent. lower than that for 1911 and 1912 combined.

Abdominal Tuberculosis.

Abdominal tuberculosis is the third form of tuberculous disease of interest in this discussion. We have included in our figures deaths from tuberculosis of the gastroenteric tract, including the peritoneum, the omentum and the mesenteric glands. In all, there were 3,155 such deaths. Deaths from this disease seem to be fairly well distributed over the entire range of life. The variation in the death rate from one age period to another is not so marked as was observed for pulmonary tuberculosis or for tuberculous meningitis. There appear to be in this present series of data three points of modal incidence, the first at the age period one to four years, the second in the age period 35 to 44 years and the third after age 75. Between each of these points the curve tends to assume a concave form. The least rate was registered in the age period ten to fourteen years. Our facts according to color, sex and age period are displayed in the following table:

TABLE 25.

Mortality from Abdominal Tuberculosis, Classified by Color, Sex and Age Period.

Death Rates Per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	5.9	3.7	4.6	15.4	19.6
1 to 4	6.8	6.2	5.2	28.2	14.6
5 to 9	3.4	2.2	2.1	16.9	18.2
10 to 14	3.2	1.1	2.3	14.2	21.1
15 to 19	5.3	2.2	3.4	19.8	32.8
20 to 24	6.4	3.2	5.3	17.1	23.8
25 to 34	6.7	3.9	5.1	13.4	19.8
35 to 44	7.9	5.2	6.5	13.8	18.6
45 to 54	6.3	5.4	5.5	10.7	11.3
55 to 64	7.6	7.7	5.9	16.2	13.6
65 to 74	8.4	8.4	7.7	6.7	16.4
75 and over	10.6	8.5	11.7	——	18.1

The colored show higher death rates in this series than do the whites, and the rate for females of each color group exceeds that for the males.

Among white lives, there is no great difference between the rates of the two sexes under ten years of age. Beginning with the age period ten to fourteen years, however, the death rates for abdominal tuberculosis among white females begin to exceed the rates for white males to a significant extent, up to and including the period thirty-five to forty-four years. This suggests the influence of puerperal traumata as causes contributing to the development of abdominal tuberculosis. For the period forty-five to fifty-four years, the rates for both sexes for white lives are approximately the same. After fifty-five years of age, the figures for white males exceed those for white females up to and including age seventy-four.

White males and white females show in general a decreasing death rate from abdominal tuberculosis in this experience. Colored males, however, show a variable rate with no definite tendency in either an upward or downward direction. There seems to be only a slight downward tendency in the death rate from abdominal tuberculosis among colored females. These facts are displayed in the following table:

TABLE 26.

Mortality from Abdominal Tuberculosis, Classified by Color and by Sex.

Death Rates Per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	5.9	3.7	4.6	15.4	19.6
1916..........	5.1	3.2	3.7	15.3	18.4
1915..........	5.2	3.3	4.0	14.5	18.6
1914..........	5.5	2.9	4.6	14.3	20.0
1913..........	6.2	3.7	5.1	17.1	19.2
1912..........	6.6	4.8	4.8	17.0	20.6
1911..........	6.9	4.6	5.8	14.3	21.1

Comparison of the death rates for abdominal tuberculosis among white insured persons and among persons in the Registration Area shows some items of interest. These are displayed in the following table:

TABLE 27.

MORTALITY FROM ABDOMINAL TUBERCULOSIS.

Death Rates Per 100,000 Persons Exposed. Classified by Sex and by Age.

Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over . .	3.7	4.8	77.1	4.6	6.0	76.7
1 to 4......	6.2	6.9	89.9	5.2	5.3	98.1
5 to 9......	2.2	2.7	81.5	2.1	2.2	95.5
10 to 14.....	1.1	1.9	57.9	2.3	2.6	88.5
15 to 19.....	2.2	3.3	66.7	3.4	5.1	66.7
20 to 24.....	3.2	4.4	72.7	5.3	6.9	76.8
25 to 34.....	3.9	4.6	84.8	5.1	7.2	70.8
35 to 44.....	5.2	4.9	106.1	6.5	7.0	92.9
45 to 54.....	5.4	5.6	96.4	5.5	6.9	79.7
55 to 64.....	7.7	8.4	91.7	5.9	9.1	64.8
65 to 74.....	8.4	10.4	80.8	7.7	10.4	74.0
75 and over..	8.5	7.6	111.8	11.7	10.6	110.4

It is a matter of great interest that the male mortality for the general population of the Registration Area exceeds that for white males in the insurance experience. The only exception is in the age group 35 to 44 years and beyond age 75. Among females, the population rates are in excess of those for the insurance experience for all age periods except 75 years and over. The least ratio of excess is to be observed in the age period 1 to 4 years.

TUBERCULOSIS OF OTHER FORMS, AND DISSEMINATED TUBERCULOSIS.

We did not deem it desirable to bring out in any great detail the facts for the remaining forms of tuberculosis registered in our mortality records. In addition to mortality from the forms of tuberculosis which have been discussed in the preceding sections, we recorded 2,655 deaths from tuberculous infection of other organs. These deaths occurred at a rate of 4.9 per 100,000 exposed. According to our records, there was a gradual decrease in deaths from these miscellaneous forms of tuberculosis, from a rate of 5.8 per 100,000 in 1911 to a rate of 4.1 in 1916.

CHAPTER V.

ORGANIC DISEASES OF THE HEART.

The deaths classified as due to "organic diseases of the heart" form a group which is second in numerical importance only to tuberculosis in this mortality experience of insured wage earners. In the experience of the general population of the expanding Registration Area in recent years, organic heart disease has ranked first as a cause of death. During the six-year period, 1911 to 1916, 75,345 deaths from organic cardiac diseases were recorded among the Company's Industrial policyholders. This number is 11.9 per cent. of the 635,449 deaths from all causes. The deaths correspond to a rate of 140.1 per 100,000 exposed. This is for the entire experience period; but in four of the six years the rate was higher than that for the period as a whole.

The chief interest in connection with the study of the mortality from cardiac disease lies, of course, in its variable age, color and sex incidence. The disease is primarily one of advanced life, although, as we shall see, it takes a significant toll at the younger adult ages. The rate is considerably higher among colored persons than among the white group, which condition also obtained in the Registration Area for the period as a whole and for each included year. This was true for each sex for every significant age group with the exception of that relating to decedents 75 years of age and over.

The death rates are very different for the two sexes. Almost without exception the rates for females are higher than for males up to and including the age period 20 to 24 years. After this age period, however, the situation is reversed, the death rates for males being very much higher than for females. This is uniformly true for white lives but there are a few exceptions among the colored. It would appear, therefore, that these organic heart diseases in their higher incidence among adult males strike heavily at the chief or only income producers of families; often after long periods of sickness in which the wage earner has been unable to work actively all or part of the time. These diseases thus bring about hardship and distress which can not be shown in figures. In fact, if it were possible to calculate the money loss to the country through deaths from the heart affections and the long periods of sickness which precede them, the importance of cardiac disease economically would be much more impressively demonstrated than is possible by the publication of mere numbers of deaths and the corresponding death rates.

Considered irrespective of color or sex, we find that the death rates for the organic diseases of the heart increase regularly with age, but show their greatest increases in the higher age periods. This is brought out clearly in the following table and in the accompanying graph:

TABLE 29.

MORTALITY FROM ORGANIC DISEASES OF THE HEART, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

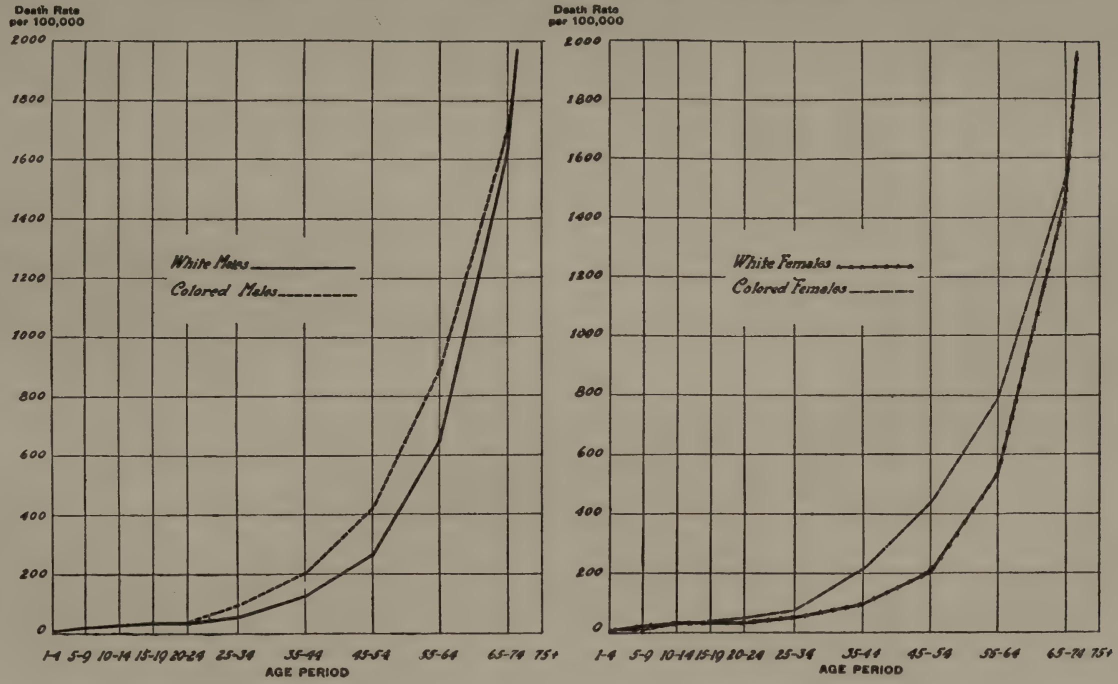
Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	140.1	125.9	137.0	191.0	202.0
1 to 4......	7.3	7.0	6.4	14.1	14.6
5 to 9......	16.2	14.9	18.2	11.4	14.1
10 to 14.....	26.7	22.7	31.4	19.9	28.3
15 to 19.....	30.2	28.7	31.2	29.4	34.9
20 to 24.....	30.6	28.5	30.4	32.2	42.8
25 to 34.....	53.5	51.6	45.6	89.6	72.8
35 to 44.....	121.8	120.1	92.6	201.2	211.7
45 to 54.....	253.6	259.0	201.1	416.0	433.1
55 to 64.....	604.8	641.2	526.8	885.4	787.8
65 to 74.....	1523.1	1624.2	1443.0	1702.2	1530.3
75 and over..	2808.1	3033.1	2703.1	2647.8	2613.2

Significant relations may be brought out by comparing the foregoing figures for white persons with those for the total expanding Registration Area of the United States. We shall use for this purpose the population figures for the six year period 1910 to 1915 inclusive. Taking all ages one and over together in the two experiences, we find that the mortality rate for insured white males (125.9 per 100,000) was lower than that for males of the Registration Area (147.0 per 100,000) and that the rate for insured white

Chart VI.—MORTALITY FROM ORGANIC DISEASES OF THE HEART

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



females (137.0) was lower than the rate for females in the general population (140.7). No mistake should be made, however, as to the meaning of these figures. The apparent advantage in favor of the insured group results simply from their more favorable age distribution. A larger proportion of them are in the younger age groups where the death rate from the heart diseases is low, and only a small proportion of the policyholders are found in the advanced ages when the death rate from these conditions is very high. A comparison between the two series must, therefore, be strictly limited to each age period and to each of the sex groups, separately.

The following table shows, side by side, the figures for males in the expanding Registration Area compared with those for insured white males and for females in the Registration Area compared with insured white females:

TABLE 30.

Mortality from Organic Diseases of the Heart.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.
All ages—one and over....	125.9	147.0	85.6	137.0	140.7	97.4
1 to 4.....	7.0	7.6	92.1	6.4	7.6	84.2
5 to 9.....	14.9	12.6	118.3	18.2	15.3	119.0
10 to 14....	22.7	16.6	136.7	31.4	21.2	148.1
15 to 19....	28.7	19.7	145.7	31.2	20.4	152.9
20 to 24....	28.5	20.0	142.5	30.4	23.0	132.2
25 to 34....	51.6	33.4	154.5	45.6	36.9	123.6
35 to 44....	120.1	76.0	158.0	92.6	76.8	120.6
45 to 54....	259.0	175.5	147.6	201.1	160.9	125.0
55 to 64....	641.2	474.4	135.2	526.8	409.2	128.7
65 to 74....	1624.2	1213.8	133.8	1443.0	1044.1	138.2
75 and over.	3033.1	2665.6	113.8	2703.1	2438.6	110.8

Thus compared, a very different picture is presented, for, with the single exception of the period of early childhood, namely, 1 to 4 years, the death rates are much higher for the insured group than for the general population. It is especially at the working ages of life that the disadvantage of the policyholders is evident. The facts of mortality from organic diseases of the heart, as for tuberculosis, show with advancing age the cumulative effect upon the vitality of wage earners of more severe conditions of life and work, and perhaps of less favorable hygienic circumstances, than are found in the general population of the United States.

This conclusion is apparently substantiated when we compare the relation between the death rates of the two sexes in the population and in the insured group. We find, for example, in the twenty year age period, from 25 to 45 years, very much higher rates for males than for females in the wage earning element. On the other hand, in the general population, females at these ages do not enjoy any such advantage; in fact, the rates are slightly higher for them than for the males. This would seem to be the result of the severer strain of life and work to which male wage earners are exposed.

The trend of the death rate from organic heart diseases in the Industrial Department of the Metropolitan Life Insurance Company during the six years is interesting and is in marked contrast with the tendency shown by the figures of the general population. In the insurance figures the rate for 1916 is lower than for 1911 (140.2 as compared with 141.8). This represents a decline of 1.1 per cent. in the period. On the other hand, in the expanding Registration Area the figures show a very considerable increase in the six year period from 140.9 in 1911 to 150.1 per 100,000 in 1916 (6.5 per cent.). It is quite true that in both experiences there is a certain irregularity in the trend; but the rates for the insured group, very generally speaking, show downward tendency, whereas those for the population, especially since 1913, show a continuous rise. The changes that have occurred in the population figures are even more strikingly brought out when we go back a number of additional years. In 1900 the Registration Area rate was only 111.2 per 100,000; by 1904 it had, through continuous increases, reached 133.4. From that year until 1911 there was considerable fluctuation; the 1911 rate (140.9) marked a 26.7 per cent. increase over the figure for 1900.

The following table presents the trend of mortality among insured wage earners in the years 1911 to 1916:

TABLE 31.

MORTALITY FROM ORGANIC DISEASES OF THE HEART, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916	140.1	125.9	137.0	191.0	202.0
1916....	140.2	126.0	135.8	197.2	212.9
1915....	136.7	119.4	136.1	183.9	207.1
1914....	138.1	125.5	134.6	191.5	193.1
1913....	140.6	127.3	137.2	194.6	193.9
1912....	143.8	129.4	139.5	202.6	205.7
1911....	141.8	128.8	139.9	175.5	198.7

The increase in mortality from organic heart diseases which we have just discussed for the Registration Area has, in recent years, given rise to the prevalent opinion that there has been a marked increase in the so-called "degenerative diseases." Certainly this conclusion is not substantiated by the facts presented by the mortality data for insured wage-earners. If, however, we limit ourselves to a consideration of the expanding Registration Area alone, we should keep in mind that even these data with their marked increases in the interval since 1900 must not be taken on their face as final. The Census Bureau itself has continually cautioned the readers of its reports on Mortality Statistics against comparing the more recent figures for organic diseases of the heart with those running prior to 1910. Very important changes in the statistical treatment of this return of cause of death have been instituted by the Census Bureau. Certain statements of cause, such as, "endocarditis" and "myocarditis" for decedents over 60 years of age which were formerly excluded from this title are now classified under it. Methods of treating jointly reported causes of death as well as the accelerated tendency of physicians to report more definitely the conditions causing death, have undoubtedly resulted in the increased reporting of organic diseases of the heart. The evidence, therefore, is clear that a large part, at least, of the increase in the death rate of the heart diseases is fictitious, resulting merely from changed reporting and compiling procedure; and so far as this concerns insured wage earners where the greatest amount of increase might be expected, it does not show at all.

Organic diseases of the heart, International List title No. 79, as compiled in this report, include all chronic valvular diseases, fatty degeneration, chronic myocarditis and chronic dilatation. It includes a number of deaths which are ascribed by physicians to "heart disease" without further definition. It also comprehends chronic heart diseases of rheumatic origin. On the other hand, the title does not include acute endocarditis, acute myocarditis, "endocarditis" or "myocarditis" with no further qualification, for decedents under 60 years of age. Deaths reported as due to pericarditis and those reported as due to many indeterminate cardiac symptoms such as "palpitation of the heart," "functional disease of the heart" and others are not included.

CHAPTER VI.

PNEUMONIA (ALL FORMS).

Pneumonia, as the term is popularly used, is a most important cause of death in this experience, the incidence of which has been increasing significantly during recent years. Unfortunately, the term has no great scientific value since it is used, in the main, to cover two very different conditions, namely, lobar pneumonia and bronchopneumonia. Lobar pneumonia is a disease affecting, for the most part, the adult ages of life. Bronchopneumonia, on the other hand, is a disease affecting chiefly the periods of childhood and old age. In fact, two-thirds of all the deaths in the general population experience from bronchopneumonia are those of children under five years of age. For these reasons and because of the different clinical pictures presented by these two conditions, it will be much more instructive to treat in detail each of the types of pneumonia separately. At this point it is necessary only to remark that in the period between 1911 and 1916 the total number of deaths from "pneumonia (all forms)" was 57,931; this is the total for lobar pneumonia, so defined, bronchopneumonia and "pneumonia" without further qualification. Together the death rate

TABLE 32.

MORTALITY FROM PNEUMONIA (ALL FORMS), PNEUMONIA (LOBAR AND UNDEFINED) AND BRONCHOPNEUMONIA.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	"Pneumonia (All Forms)."	Pneumonia (Lobar and Undefined).	Bronchopneumonia.
1911 to 1916......	107.7	77.5	30.2
1916......	114.3	80.8	33.5
1915......	106.5	74.4	32.1
1914......	100.3	68.9	31.4
1913......	106.1	77.7	28.4
1912......	103.9	75.8	28.1
1911......	115.3	89.2	26.1

for the six year period was 107.7 per 100,000 exposed. The preceding figures show the trend in the rate for this large group of causes of death since 1911.

(a) Pneumonia (lobar and undefined).

Statistics of mortality from pneumonia (lobar and undefined) are interesting from many standpoints. Lobar pneumonia is the most important numerically of the infectious diseases. It kills every year more people than die of such infectious diseases as measles, scarlet fever, diphtheria, whooping cough and acute poliomyelitis combined. Any one stricken with lobar pneumonia, moreover, has a smaller chance of recovery than have those afflicted with any one of the other conditions just mentioned—even poliomyelitis or "infantile paralysis." Several health departments have, therefore, placed lobar pneumonia on the list of reportable diseases, thus officially recognizing the fact of its infectiousness and calling attention to its extremely fatal nature.

During the six-year period 1911 to 1916, in this experience, 41,707 insured wage earners and members of their families died of pneumonia (lobar and undefined). The death rate corresponding to this number of deaths was 77.5 per 100,000. This group of diseases shows a higher death rate among colored policyholders than among the white. The table on page 74 shows also that these facts are true both for males and females. The ages of highest mortality are the extremes of life. This applies to both white and colored persons and to males and females. The excess of colored over white mortality is shown in every age period for both males and females.

Further consideration of this table shows that the rate for males is almost uniformly higher than that for females. There are, to be sure, two exceptions among white lives, one at ages 10 to 14 years, the other at the very advanced age period 75 years and over, but in both cases the difference between the two sexes is slight and does not materially affect the conclusion drawn. Beginning with the period 25 to 34 years and continuing up to 65 to 74 years, the rate for males is much in excess over the rate for females; in fact, for a number of these age periods the rate for males is more than twice that of females. Much the same conclusion may be drawn from the comparison of the rates for the two sexes of the insured

TABLE 33.

MORTALITY FROM PNEUMONIA (LOBAR AND UNDEFINED), CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over........	77.5	82.6	63.0	141.5	97.2
1 to 4......	108.0	103.5	93.2	240.4	232.2
5 to 9......	19.7	17.9	17.5	32.8	47.6
10 to 14.....	11.5	9.5	10.8	22.8	24.9
15 to 19.....	20.8	19.4	14.6	52.4	51.8
20 to 24.....	29.5	29.0	17.9	94.0	60.5
25 to 34.....	50.1	62.6	29.4	119.8	55.8
35 to 44.....	89.7	130.9	50.8	175.2	86.2
45 to 54.....	139.6	197.4	92.7	242.7	126.9
55 to 64.....	247.9	300.7	203.3	346.4	251.8
65 to 74.....	468.7	500.0	441.1	542.9	482.7
75 and over..	791.3	774.6	794.4	836.9	834.8

colored group, although the differences are not, on the whole, as great as those observed among the whites. The charts on page 75 graphically illustrate these facts for pneumonia mortality according to age.

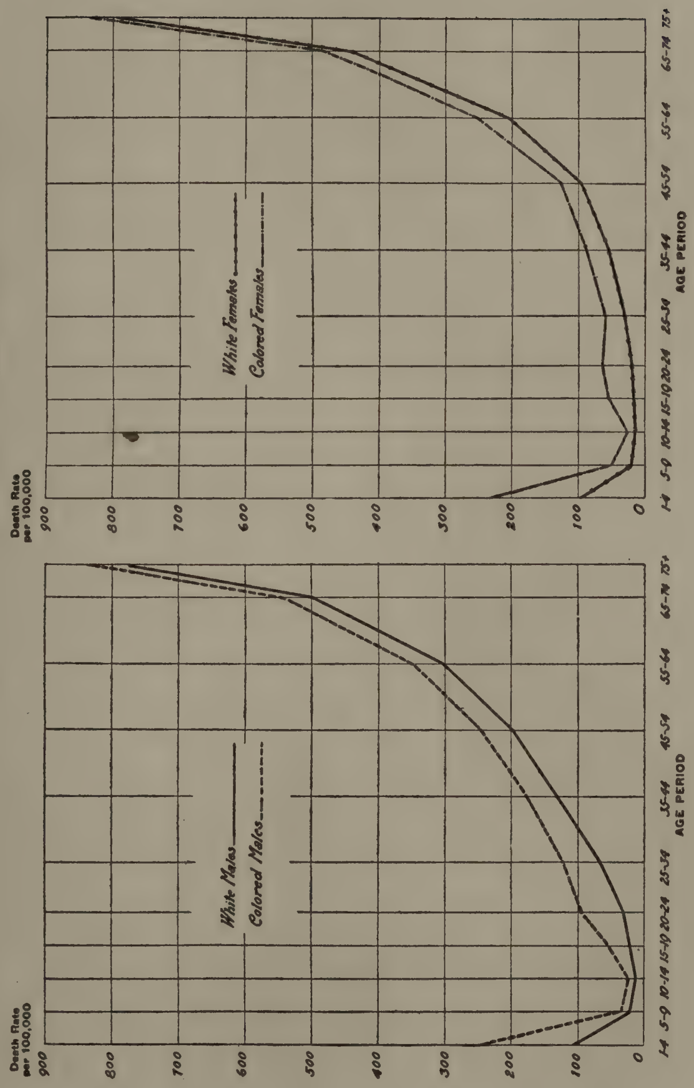
The rate already noted for the entire experience, namely, 77.5 per 100,000, is somewhat more favorable than that found in the expanding Registration Area of the United States for the six-year period 1910 to 1915. This condition is still in evidence when the estimated population of the Area under one year of age is eliminated, and the rates are computed for persons of the same age groups as those covered by the insurance experience. Thus, we find that in the six-year period 1910 to 1915 the population rate for males was 84.3 per 100,000, while the rate for females was 66.6. These compare with the policyholders' figures of 82.6 and 63.0 for insured white males and white females respectively. The general population figures would be somewhat lower if it were possible to eliminate the effect of the colored element which is included. This cannot be done but it is evident that the exposures in the two experiences are, by and large, in very close agreement.

An analysis by age groups shows, however, a number of important points of difference when we compare the experience in the

Chart VII.—MORTALITY FROM PNEUMONIA—LOBAR AND UNDEFINED

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



general population with that of the insured. We find, for example, that for males, the general population rates are somewhat higher until central age 22.5 is reached. At this point there is a sharp upward trend in the experiences—much more pronounced, however, among white male policyholders than in the general population—so much so that the rate in the next age period for white male policyholders is considerably in excess of that for males in the general population. Comparing females, we find that white female policyholders enjoyed an advantage up to and including the age period 20 to 24 years. Thereafter they show, without exception, higher rates, although the differences are not as great as those we recounted for the males.

In both experiences the age group of maximum mortality is the period 75 years and over and the minimum mortality occurs in the age period 10 to 14 years. The following table presents the facts by sex and age period for the expanding Registration Area without distinction of color, and for white males and white females insured in the Industrial Department of the Company:

TABLE 34.

MORTALITY FROM PNEUMONIA (LOBAR AND UNDEFINED).

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.
All ages—one and over....	82.6	84.3	98.0	63.0	66.6	94.6
1 to 4.....	103.5	110.4	93.8	93.2	97.3	96.8
5 to 9.....	17.9	19.5	91.8	17.5	17.8	98.3
10 to 14....	9.5	11.4	83.3	10.8	12.0	90.0
15 to 19....	19.4	24.6	78.9	14.6	16.1	90.7
20 to 24....	29.0	33.1	87.6	17.9	19.9	89.9
25 to 34....	62.6	46.2	135.5	29.4	29.0	101.4
35 to 44....	130.9	81.7	160.2	50.8	43.7	116.2
45 to 54....	197.4	127.4	154.9	92.7	73.7	125.8
55 to 64....	300.7	204.4	147.1	203.3	155.6	130.7
65 to 74....	500.0	344.9	145.0	441.1	336.2	131.2
75 and over.	774.6	701.0	110.5	794.4	785.8	101.1

It is to be observed that many of the age characteristics discussed in the section on pulmonary tuberculosis are to be noted in these data for pneumonia (lobar and undefined). For both these diseases the period 1 to 4 years is one of very high incidence. The rates decline to a minimum in the age period 10 to 14 years and thereafter increase rapidly, reaching the maximum at the highest age period rather than at the period of middle adult life as in tuberculosis. Beginning with the age period 55 to 64 years for females and 65 to 74 years for males, the rates for pneumonia (lobar and undefined) are considerably higher than those for pulmonary tuberculosis.

The trend of the death rate for pneumonia in recent years has been somewhat disquieting. The highest death rate in the Metropolitan experience was found in 1911 (89.2). The lowest was for the year 1914 (68.9). Since 1914 there has been a distinct increase in the mortality rate, which rose to 74.4 in 1915 and still higher, to 80.8, in 1916. Much the same picture is presented by the figures for the Registration Area. The year of maximum mortality in the population figures, 89.2, was also 1911. The minimum was reached in 1914 and the same general tendency toward a rise is observable in later years. It is quite possible that the rates in both experiences for 1911 are higher than they should be because our inquiry system was not as effective in the early years of this investigation as in the later years when many cases of so-called "pneumonia" were charged to bronchopneumonia or to other more definitely described diseases as a result of the supplementary statements of physicians.

The above suggests that it may be advisable to discuss with some fullness the routine followed in this office in assigning deaths reported as due to "pneumonia." In every instance in which the case was returned certified as due to "pneumonia," a letter was sent to the physician containing one of the following inquiries:

(*a*) QUERY FOR DEATHS OF CHILDREN UNDER 15 YEARS OF AGE:

Does the word "*pneumonia*" as used by you refer to lobar, bronchial, grippal, or tuberculous pneumonia? Following any contagious disease (measles, whooping cough, scarlet fever, etc.)? Traumatic? If so, means and nature of injury?

(*b*) OTHER DEATHS:

Does the word "*pneumonia*" as used by you refer to lobar, bronchial, grippal, or tuberculous pneumonia? Was it traumatic? If so, was death due to suicide, homicide or accident, and if the last, what *kind* of accident was the primary cause of death (steam railroad, street car, fall, etc.)?

As a result of these inquiries, it is safe to say that thousands of cases have been definitely established as due either to the lobar or bronchial form of the disease. Those due to the bronchial form were so classified; those definitely ascribed as due to the "lobar" form were included in the 41,707 deaths previously referred to in this section of the report. It is safe to say that not less than ninety per cent. of these deaths were actually caused by true lobar pneumonia; the remaining cases included deaths that were certified as caused by pleuropneumonia, double pneumonia, and more commonly by "pneumonia," where no additional information could be obtained. We feel confident in the safety of this estimate because in the returns of the Bureau of the Census the proportion of lobar pneumonia actually recorded under this title was 87 per cent., in recent years. The inquiry system applied to the returns of the present study has covered a higher proportion of such reports during the period than that carried on by the Census Bureau during the same period. This fact would undoubtedly result in a larger proportion of cases properly classified as true lobar pneumonia.

(b) BRONCHOPNEUMONIA.

Sixteen thousand, two hundred and twenty-four (16,224) deaths from bronchopneumonia occurred in this experience during the six-year period 1911 to 1916. The death rate was 30.2 per 100,000 exposed.

Color, Sex and Age Incidence.

The death rate of the colored policyholders, both male and female, exceeded that of the white group. This is true of each sex class for each year of the period with the exception of the year 1912, for which the mortality among white females (27.7) was very slightly higher than that of colored females (27.5). There is, according to the Metropolitan experience for the sexennium as a whole, very little difference between the death rates of the two sexes for this disease. The rate at all ages for white males (29.6) exceeds only very slightly that for white females (29.2), while that for colored males at all ages (37.7) is not much higher than for colored females (33.7). Of the 16,224 deaths among Metropolitan policyholders, 7,007, or 43 per cent., were those of children between

1 and 5 years of age. If this proportion is less than that in the population at large, it is because the first year of life is excluded among the insured and this is an age of heavy incidence for bronchopneumonia. The number of deaths in this age period far exceeded that of any other age group, although the death rate (155.3) is not as high as that for either of the periods 65 to 74 years or 75 years and over (185.3 and 426.9 respectively). There was, of course, a far greater number of living policyholders during the earlier period.

Further analysis of the mortality for bronchopneumonia by age groups brings out a number of rather interesting phenomena. Among white males the death rate for the period 1 to 4 years was 145.4; the corresponding figure for white females was 139.9. In this, the most significant age group, the proportion of deaths of males to those of females was somewhat heavier than that indicated by the death rates for white males (29.6) and of white females (29.2) at all ages. In the next age period 5 to 9 years, on the other hand, a higher rate among white persons is shown for females (13.0) than for males (11.5). Indeed, for each of the next three age periods the rate for females is slightly in excess of that for males. When the age group 25 to 34 years is reached this condition changes and more or less pronounced excesses are shown for white males for the groups 25 to 34, 35 to 44, 45 to 54 and 55 to 64 years. In the two highest age groups, we find the mortality among white females, again, to be higher than that for white males. Since the number of deaths that occurred and the number of persons exposed is large enough to be significant, these sex characteristics of bronchopneumonia mortality among white policyholders are exceedingly interesting.

The sex distribution of the mortality among colored policyholders is less significant on account of the much smaller number of deaths involved and of persons exposed, but in many respects it corresponds with that of the white policyholders. The death rate among colored males for the period 1 to 4 years (329.4) is higher than that for colored females (317.9); for the next two age periods the higher rates are shown for colored girls. For the age period 15 to 19 years the experience was contrary to that among white policyholders, for the death rate for males (12.5) exceeded that for females (10.3). From this age period to the higher age periods the sex ratio of bronchopneumonia mortality is practically the same for colored persons as for the whites, except that in the highest age group the excess of the rate for females over that for males is much smaller among colored persons than for the corresponding age period among white persons. The number of deaths involved in this last age group, however, is small, as indeed, are the numbers in several of the age periods.

The following table and chart show the death rate for bronchopneumonia per 100,000 persons exposed by certain specified age groups for all policyholders and for white and colored policyholders by sex, for the period 1911 to 1916.

TABLE 35.

MORTALITY FROM BRONCHOPNEUMONIA, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

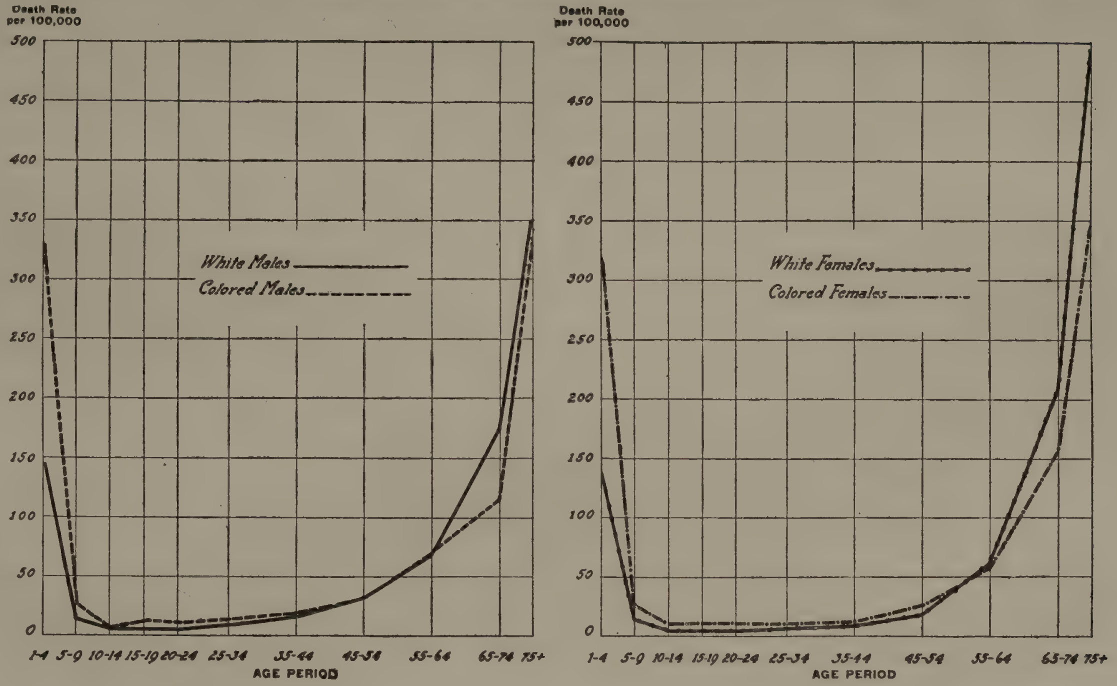
Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	30.2	29.6	29.2	37.7	33.7
1 to 4......	155.3	145.4	139.9	329.4	317.9
5 to 9......	13.4	11.5	13.0	25.0	26.2
10 to 14.....	3.3	2.7	3.1	6.0	9.0
15 to 19.....	3.7	2.6	2.9	12.5	10.3
20 to 24.....	4.0	2.8	3.3	10.2	10.3
25 to 34.....	6.4	6.7	4.6	12.4	9.4
35 to 44.....	11.2	14.0	8.2	18.4	11.1
45 to 54.....	23.3	29.0	18.2	31.3	26.2
55 to 64.....	62.2	65.0	60.6	69.0	56.8
65 to 74.....	185.3	173.1	202.7	113.6	153.9
75 and over..	426.9	350.4	484.7	343.0	344.8

The death rate for this disease for the year 1911 was 26.1 and a continuous increase is shown throughout the sexennium. The maximum mortality, that of the year 1916, was 33.5 per 100,000. The death rates for the several years of the period are much lower than those for the corresponding years in the expanding Registration Area, but the increasing mortality is in evidence for both experiences; it was not continuous, however, in the Registration Area. In the latter experience, the 1914 rate was slightly

Chart VIII.—MORTALITY FROM BRONCHOPNEUMONIA

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



lower than that for 1913, and the 1916 rate was lower than that for 1915. The death rate for bronchopneumonia in the expanding Registration Area is higher than that for the group of insured wage earners because bronchopneumonia is a disease which takes its largest toll among infants under 1 year of age. The expanding Registration Area experience shows that about 40 per cent. of the mortality from this disease is that of infants under 1 year of age. It is also the cause of death of many thousands of people of 70 years and over. Since there is no exposure among policyholders for the period of early infancy and a smaller proportionate exposure among elderly people than in the Registration Area, it is easy to account for the higher bronchopneumonia death rate of the latter group. In other words, the experiences are not comparable, so far as the crude death rates are concerned, on account of the differing age distributions of the two populations.

The following table gives the death rates for bronchopneumonia for all policyholders, and for white and colored policyholders by sex, for the six-year period as a whole and for each year comprehended. The upward trend of the mortality charged to this disease is obvious. Chart IX graphically illustrates the data on the trend of bronchopneumonia mortality in this experience.

TABLE 36.

MORTALITY FROM BRONCHOPNEUMONIA, CLASSIFIED BY COLOR AND BY SEX. *Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

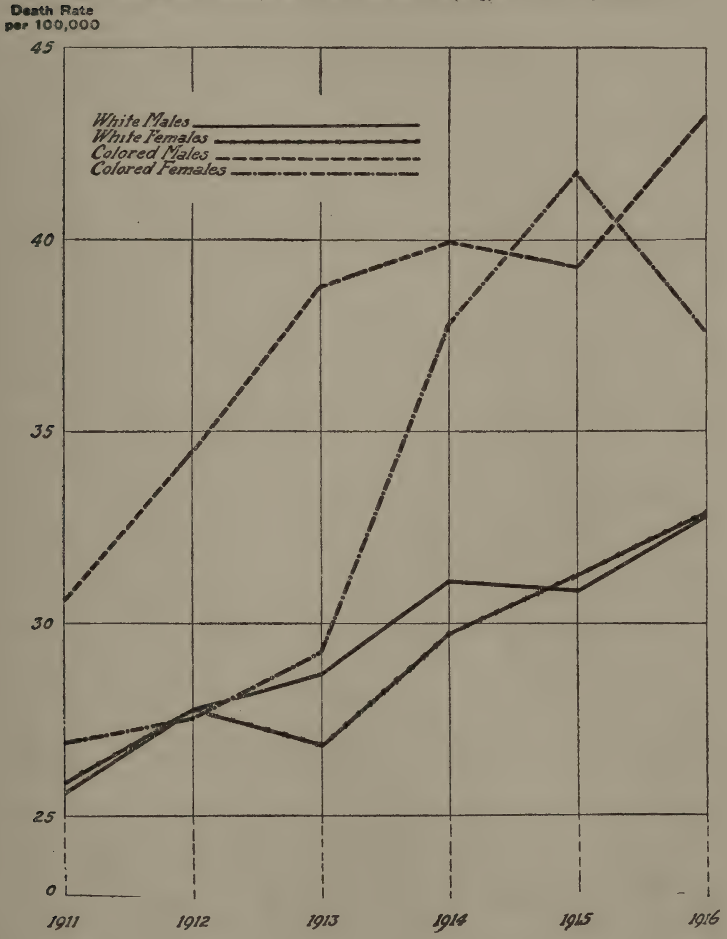
Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916.	30.2	29.6	29.2	37.7	33.7
1916....	33.5	32.7	32.6	43.3	37.5
1915....	32.1	30.8	31.2	38.3	41.8
1914....	31.4	31.1	29.7	39.9	37.8
1913....	28.4	28.7	26.8	38.8	29.3
1912....	28.1	27.7	27.7	34.4	27.5
1911....	26.1	25.6	25.8	30.6	26.9

Since bronchopneumonia is a disease with a very pronounced age incidence, interest in comparing the mortality among wage earners

Chart IX.—Mortality from Bronchopneumonia

Death Rates per 100,000 Persons Exposed By Single Years 1911 to 1916

Experience of Metropolitan Life Insurance Company, Industrial Department



and their families with that among the general population attaches chiefly to the comparative mortality for the several age groups. In order to compare the death rate of young children it is, of course, necessary to eliminate the exposure under 1 year of age in the general population, since there is no corresponding exposure for the policyholders. For the age group 1 to 4 years the estimated death rate for bronchopneumonia among males in the Registration Area for the sexennium 1910 to 1915 was 143.2 per 100,000 population. This is lower than the corresponding rate for white males among the Industrial policyholders (145.4). It is believed, however, that this slight difference is more than accounted for by the higher proportion of reports of cause of death in the insurance experience changed from "pneumonia" to bronchopneumonia as the result of information additional to that contained in the original certification and obtained through correspondence with the physicians who made the reports. Comparison by age groups shows, in every important instance, a higher mortality for the white male policyholders than for males in the general population, and this excess becomes more pronounced in the higher age periods. It is probable that a part of this excess in the rate for insured wage earners is real and represents the effect of their economic and sanitary disadvantages.

The age period of maximum mortality among males in the Registration Area is shown to be the same as among the insured, namely, the highest age group, 75 years and over. In the general population experience, however, the lowest group, one to four years, shows a higher death rate than the group 65 to 74 years. This is contrary to the experience for the Industrial policyholders in that the death rate for white males for the age period 65 to 74 years (173.1) is considerably higher than that covering early childhood (145.4).

The following table presents a comparison of the death rates for bronchopneumonia among insured lives and in the general population of the expanding Registration Area.

While the chief interest in the mortality caused by bronchopneumonia does not attach to the main wage earning periods, there are to be noted a few rather important differences in the ratios of the rates for males and of females which are in evidence in comparing the general population with the insurance experience on white lives. Beginning at the period 15 to 19 years, the death rate among the

TABLE 37.

Mortality from Bronchopneumonia.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.
All ages—one and over....	29.6	26.9	110.0	29.2	30.0	97.3
1 to 4.....	145.4	143.2	101.5	139.9	134.5	104.0
5 to 9.....	11.5	10.9	105.5	13.0	11.2	116.1
10 to 14....	2.7	2.7	100.0	3.1	3.7	83.8
15 to 19....	2.6	2.9	89.7	2.9	2.9	100.0
20 to 24....	2.8	3.3	84.8	3.3	3.6	91.7
25 to 34....	6.7	4.7	142.6	4.6	4.2	109.5
35 to 44....	14.0	8.7	160.9	8.2	6.5	126.2
45 to 54....	29.0	16.0	181.3	18.2	13.3	136.8
55 to 64....	65.0	35.9	181.1	60.6	39.5	153.4
65 to 74....	173.1	94.1	184.0	202.7	124.2	163.2
75 and over.	350.4	304.3	115.1	484.7	430.0	112.7

general population is identical for males and females, namely, 2.9 per 100,000 population. In the insurance experience that for females (also 2.9) exceeds slightly that for males (2.6). In the next age period (20 to 24 years), there is a slight excess in each experience in the rate for females, but in the period 25 to 34 years, the white male insurance experience with a rate of 6.7 per 100,000 exposed shows a much greater excess over the rate for insured white females (4.6) than is in evidence for the general population, for which the corresponding death rates were for males (4.7) and for females (4.2). The next age group shows higher rates for the males in each experience, but the difference between the rates by sex is much greater among the insured (14.0 for white males as compared with 8.2 for white females) than among the general population (8.7 for males and 6.5 for females). For the period 45 to 54 years with higher death rates (insured white males 29.0, white females 18.2; general population: males 16.0, females 13.3) there is, again, a greater divergence between mortality of males and females among the wage earning group than prevails for the population as a whole. When the age group 55 to 64 years is reached, we find that the death rate for females in the general population exceeds that for the males (males 35.9, females 39.5), which is contrary to the facts shown for the insured group (white males 65.0, white females 60.6; colored males, 69.0, colored females, 56.8).

Reliability of the Figures for Bronchopneumonia Mortality.

Death rates for bronchopneumonia should be used with caution. It will be noted that the figures indicating the mortality among insured wage earners from this disease show a continuous increase during the six years covered by this report. The rates for the expanding Registration Area also show an increase which was continuous during the same period with the exception of two years, for each of which the deviation was too small to be significant. Prior to 1911 the published rates for the Registration Area were still lower than those for the period 1911 to 1916, and a superficial analysis of Registration Area experience would lead one to believe that in the seventeen years covered thereby there had been an increase in the mortality caused by this disease of 124 per cent. Briefly, it may be said that the increased published death rates for bronchopneumonia in both the insurance and general population experience have been brought about, first, by improved statements of cause of death on certificates and insurance forms, and second, by the ever-increasing strictness with which reports of "pneumonia," unqualified, are sent back to certifying physicians with requests for information as to the type of the disease. Still another matter should be considered in analyzing the published mortality from bronchopneumonia in this or any other volume. To a certain extent the statement of "bronchopneumonia" itself is an unsatisfactory report of cause of death. While it is probably true that the disease is idiopathic in the majority of cases where it is the only cause reported, it is also true, and has been demonstrated, that in many cases the condition is a sequela of other diseases not mentioned on the physician's original report.

CHAPTER VII.

BRIGHT'S DISEASE.

Certification of Bright's Disease.

The statistical treatment of Bright's disease mortality presents a number of difficulties. The condition, as will be described more fully later, often occurs in conjunction with the so-called cardiovascular diseases, such as organic diseases of the heart, arteriosclerosis, cerebral hemorrhage, etc. In such instances, much depends, in the statistical registration of the death, upon the definiteness with which the cause of death has been certified by the physician. Where, for example, the statement is "Bright's disease" combined with valvular disease of the heart, the death is assigned to the latter condition. A more specific statement of Bright's disease as *chronic interstitial nephritis* and valvular disease of the heart is, on the other hand, registered as a death from Bright's disease. The several terms used by physicians may refer to precisely the same diseases and conditions in each of the cases, but, in the one instance, the assignment of the death is to a heart condition, and in the other to the condition of the kidney. Standard practice requires such assignment; nevertheless, it is generally believed that, as a result of the present status of reporting, many cases of true Bright's disease which would receive precedence if fully described, are lost from the record in view of the fact that few tables contain any reference to the secondary causes of death.

Mortality from Bright's Disease among Insured Wage Earners.

Even under the above considerations, Bright's disease appears as the fourth cause in numerical importance in the Industrial experience of the Metropolitan Life Insurance Company. In all, 52,067 deaths were registered in the six-year period, corresponding to a rate of 96.8 per 100,000 living.* In general, the contour of the curve of mortality according to age is very similar to that for organic heart disease, although the figures are in every case lower than those for the other condition. The mortality is comparatively low until the age period 20 to 24 years is reached. From this point onward, the increases are very marked, the rates (with one exception) more than doubling from age period to age period until the maximum is reached in the most advanced age group, 75 years and over.

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* These deaths include those certified as due to "Bright's disease," or "nephritis," without further qualification; also those reported as due to chronic Bright's disease, chronic nephritis, and to the several types of

The following table and graph present the detailed relations of the death rate from Bright's disease by color, sex and age classes:

TABLE 38.

MORTALITY FROM BRIGHT'S DISEASE, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	96.8	97.1	88.1	138.7	121.3
1 to 4	5.7	5.8	4.4	18.6	9.5
5 to 9	4.3	4.2	4.2	4.9	6.1
10 to 14	4.9	3.8	5.6	7.6	5.9
15 to 19	8.6	7.8	8.8	9.9	12.9
20 to 24	15.3	14.8	14.2	20.7	22.2
25 to 34	36.3	38.5	31.8	41.5	46.9
35 to 44	101.3	119.3	80.0	130.6	127.8
45 to 54	216.7	259.8	171.5	301.9	264.8
55 to 64	453.3	539.3	364.7	709.5	501.3
65 to 74	970.6	1146.3	826.0	1501.8	873.8
75 and over	1715.2	2106.7	1466.6	2140.2	1624.2

Bright's disease is more commonly represented in the mortality experience of colored persons than among white persons. This is true for each of the sexes and for every age period. At some of the age periods, the excess among colored persons is very marked indeed, although there is some irregularity as to the amount.

There is also a sex distinction in Bright's disease mortality which merits some attention. Males show higher rates in all of the more

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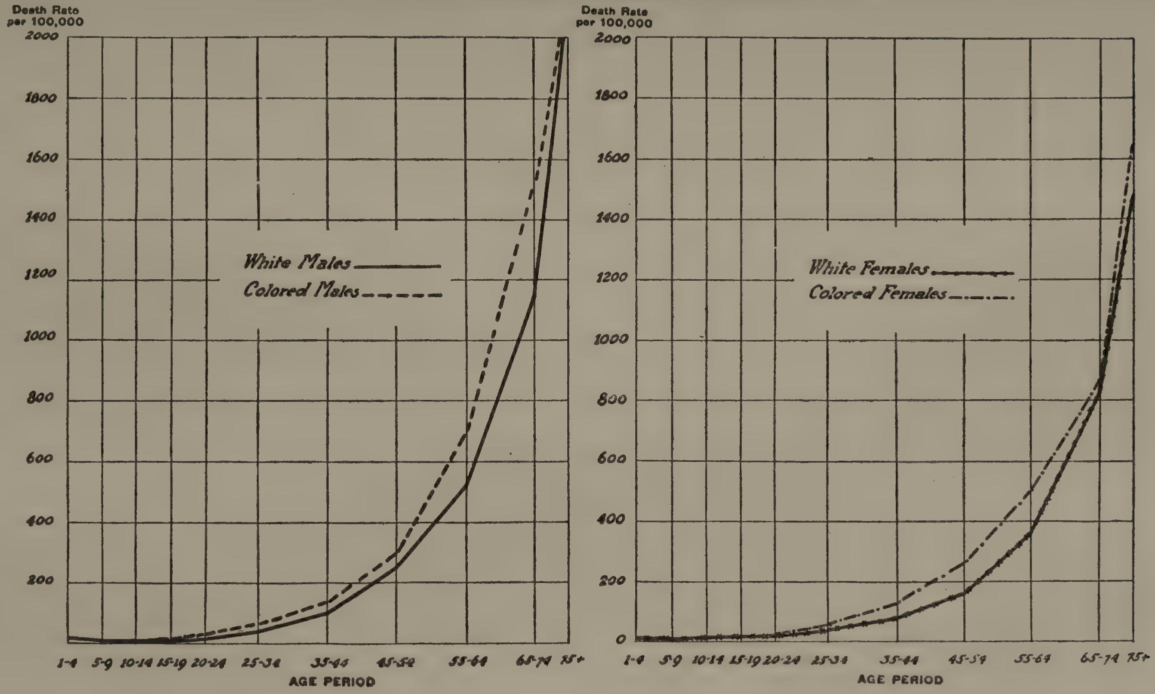
Bright's Disease, for example, chronic interstitial nephritis, chronic parenchymatous nephritis, chronic diffuse nephritis, etc. Deaths from acute nephritis are not included.

Chart X.—MORTALITY FROM BRIGHT'S DISEASE

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



significant age periods. In those few age periods where females show higher rates, the incidence of the disease is not high and the facts are somewhat clouded by the possibility of incorrect certification. Thus, in the age period 15 to 19 years, where the death rate for females for both white and colored lives is significantly higher, it is quite possible that this results from the inclusion of deaths from puerperal nephritis, which, if more complete statements had been made would not have been assigned to Bright's disease, but to the puerperal cause.

Beginning with ages ten and over, the rate increases regularly with advancing age. The peculiar situation under ten, and especially between one and four years, is probably explained by the inclusion of deaths from acute nephritis improperly certified as "Bright's disease" or "nephritis." Many of these deaths should, properly, have been classified under one of the communicable diseases of childhood, which, in so many instances, are the primary factors in such deaths.

Mortality from Bright's Disease among White Insured Wage Earners and among the General Population of the Expanding Registration Area Compared.

As was the case in the discussion of organic heart disease, we find here a higher incidence of Bright's disease among insured white lives than in the general population. This is true for each period beyond age 20 years for both males and females. The comparison is limited to the ages beyond 20 years because it is desired to eliminate the questionable data of the ages under 20 when, also, the rates are comparatively low. The excess is pronounced among males but by no means so marked among females. The maximum ratio of excess among white males occurs in the period 35 to 44 years when the rate is 88.2 per cent. higher among the insured than in the general population. This ratio of excess decreases thereafter, with a single exception. If it were possible to eliminate the small percentage of colored persons from the population of the Registration Area, the excess of the insurance experience would be even larger. Among females, the maximum difference in favor of the population occurs in the period 65 to 74 years (44.9 per cent.). These facts in the statistics for insured wage earners suggest that the more arduous pursuits of the industrial population may well be contributing factors in causing, or at least exciting, abnormal conditions of the kidney. Other factors, also, undoubtedly play their part; possibly the more general use of alcohol is important here, especially at the ages of middle adult life.

The following table presents the death rates for the insured and the population of the expanding Registration Area, side by side, by sex and from ages 20 upward:

TABLE 39.

MORTALITY FROM BRIGHT'S DISEASE.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Periods, 20 Years and Over. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.
All ages—20 and over	198.1	156.8	126.3	149.7	131.4	113.9
20 to 24....	14.8	11.0	134.5	14.2	13.4	106.0
25 to 34....	38.5	24.1	159.8	31.8	27.0	117.8
35 to 44....	119.3	63.4	188.2	80.0	62.3	128.4
45 to 54....	259.8	157.3	165.2	171.5	131.7	130.2
55 to 64....	539.3	368.4	146.4	364.7	275.2	132.5
65 to 74....	1146.3	773.1	148.3	826.0	569.9	144.9
75 and over.	2106.7	1587.9	132.7	1466.6	1129.5	129.8

Trend of the Death Rate from Bright's Disease.

On the face of the figures there is a slight upward trend in the death rate from Bright's disease in this experience. The tendency is not alarming, in any sense, in view of the possibility that in more recent years physicians have been more definite in their statements of cause of death than at the beginning of the six-year period. The office practice of the Statistical Bureau has also affected the figures, since a larger number of inquiries to physicians has been made in more recent years than at the beginning of the study, more particularly with reference to undesirable statements of "acute nephritis." There should, therefore, be no unrestrained interpretation of the figures shown below, especially in view of the difficulties pointed out at the beginning of this section on the still unsettled condition of the cause of death classification procedure in cases where Bright's disease is associated with cardiovascular diseases. The figures are presented by color and sex for the individual years between 1911 and 1916:

TABLE 40.

MORTALITY FROM BRIGHT'S DISEASE, CLASSIFIED BY COLOR AND BY SEX. *Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916	96.8	97.1	88.1	138.7	121.3
1916....	99.0	99.0	90.3	138.9	130.8
1915....	95.7	91.6	88.4	154.1	126.2
1914....	95.4	94.7	86.7	142.7	121.7
1913....	96.0	99.0	85.2	138.6	117.5
1912....	99.4	101.5	90.4	132.9	120.7
1911....	95.0	97.3	87.4	122.9	108.5

The problem of increase in Bright's disease mortality, if there is one, is much more acute among colored lives than among white lives and if any significance attaches to the increasing mortality in more recent years, it applies entirely to the colored race. It is not possible at this time to explain satisfactorily what forces are at work behind the rapidly changing figures for the colored group.

CHAPTER VIII.

EXTERNAL CAUSES OF DEATH (ACCIDENT, SUICIDE AND HOMICIDE).

The group of the external causes of death is the fifth in order of numerical importance in this investigation.

In any discussion of mortality, we may, in general, distinguish two main classes; first, those diseases and conditions which arise from pathologic processes within the body, and second, conditions which follow injury by some means or agency external to the human economy. Under each of these two fundamental divisions, we attempt to identify the specific agencies at work. Oftentimes, we must have recourse simply to a statement of the disease or condition present, without reference to the particular causative agency producing the disease. This observation applies especially to diseases of internal origin. The "external" conditions are by comparison less difficult to determine causally. Our first approach to them is to establish three classes, the division being made with respect to the element of human volition involved in the fact of injury. The first group consists of the accidental deaths, those accomplished by pure chance or through personal negligence without deliberate intent to kill, maim or incapacitate. The second group of external causes of death consists of the suicides, or cases where there was deliberate intent to accomplish self-destruction Under the third class, we consider all deaths (except war deaths) which arise from the impulse of one person to kill or injure another. These latter are "homicides." For each of these main classes of violence, we shall endeavor further to distinguish the means or agency of injury. War deaths have been taken from the class of accidental and unspecified violence and shown separately for purposes of this report.

During the six-year period covered by this investigation of wage earners' mortality, there were 50,712 deaths from external violence of all kinds. The following table gives the incidence of the three chief groups of external causes represented in our records:

TABLE 41.

MORTALITY FROM EXTERNAL CAUSES OF DEATH. CLASSIFIED ACCORDING TO MAIN GROUPS.

Deaths and Death Rates per 100,000 Persons Exposed and Per Cent. of Total Mortality from External Causes Represented in Each Main Group. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Class of External Violence.	Number of Deaths.	Per Cent. of Total External Causes.	Death Rate per 100,000 Exposed.
Total external causes	50,712	100.0	94.3
Accidents, incl. unspec. violence*	39,268	77.4	73.0
Suicides	6,542	12.9	12.2
Homicides	3,753	7.4	7.0
War deaths	1,149	2.3	2.1

* Excludes "war deaths."

The total death rate corresponding to the 50,712 deaths was 94.3 per 100,000, which, as we shall see later, is very considerably in excess of the rate for the external causes prevailing in the general population of the expanding Registration Area. More than three quarters of these deaths were due to accidents. If "war deaths" were included, as perhaps they should be to follow classification practice, the proportion would reach nearly 80 per cent. Suicides comprise 12.9 per cent. and homicides 7.4 per cent. additional. We shall consider in detail first the group of accidents.

ACCIDENTS, INCLUDING UNSPECIFIED VIOLENCE.

The general accident problem in the United States, and especially as it affects the wage earner, should interest us because of the very considerable mortality which results from this group of causes. It would appear that the special conditions of American life and industry still give rise to hazards which result in an extraordinarily large fatal accident rate. When compared with accident mortality in England and Wales, the American figures show up especially badly. In the year before the war, 1913, the fatal accident rate of England and Wales was, for males 35 to 44 years, 62.4 per 100,000. In the Registration Area of the United States, the rate for males at these ages was 139.6 per 100,000, and, among the insured white males, the rate was 154.3. In other words, the rate for England and Wales was 44.7 per cent. of that for the expanding Registration Area of the United States and only 40.4 per cent. of the rate for insured white males. Even when we consider the chief types of fatal accidents, such as falls, burns, drowning, and steam railroad accidents in these three series of figures, the rates of mortality as recorded for the United States are much above the figures for England and Wales, and those for the Industrial policyholders are, for the significant age periods, highest of all. The data on fatal accidents and especially the specific forms of accidental injury which we have included for American wage earners should, therefore, constitute a very valuable contribution for the further study of the accident problem and should prove especially useful in the movement for increased industrial and public safety which has been developed during the last ten years.

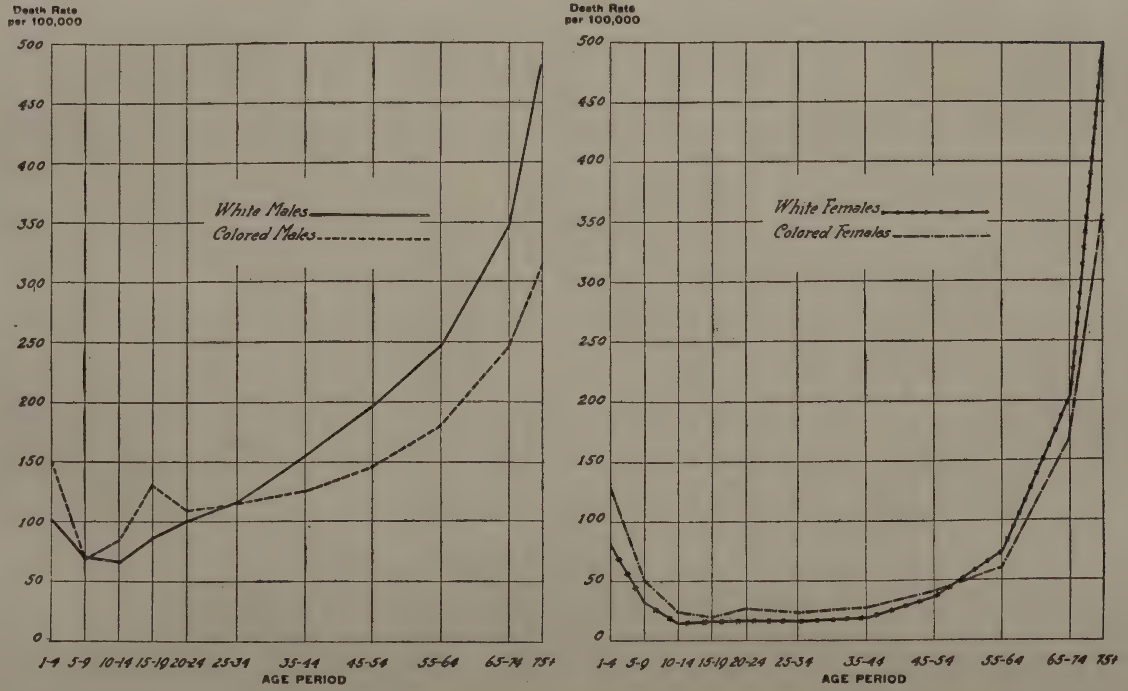
The 39,268 fatal accidents of all kinds, as we have seen, corresponded to a rate of 73.0 per 100,000 persons exposed. The fatal accident rate for males of both white and colored groups was more than three times the rate for females. The recorded fatal accident rate for colored males was somewhat higher than the rate for white males; all ages one and over being combined for purposes of these comparisons.

The accident death rate varies considerably with age; in fact, we may distinguish three divisional periods of age incidence. These are the period of early childhood, the period of occupational stress and finally the period of old age. Considering the group as a whole, we find that the highest accident death rate under age 45 was recorded between the ages 1 and under 5 years. There is a decline in the rate from the figure under 5 years of age (93.7 per 100,000) to the rate at the age group 10 to 14 years (41.4 per 100,000). This latter rate is the minimum for any age period. Beginning with the age group 15 to 19 years there is a gradually rising rate up to the highest significant age period. For the white male and white female groups the minimum accident death rate is recorded, as for the total experience, between 10 and 14 years; but for colored males the minimum rate is reached between 5 and 9 years and for colored females between 15 and 19 years. Only the white males exhibit a progressively increasing accident death rate with advancing age, beginning with the period 15 to 19 years. White females show a rather stationary tendency in the mortality

Chart XI.—MORTALITY FROM ACCIDENTS AND UNSPECIFIED VIOLENCE

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



rate between 15 and 35 years of age. Between 15 and 24 years colored males show a tendency toward decline; thereafter they exhibit a rising death rate. Colored females show a fluctuating fatal accident rate between 10 and 44 years and a rising rate thereafter. These facts are shown in the following table, and in Chart XI on page 96:

TABLE 42.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED VIOLENCE,* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Male.	Female.	Male.	Female.
All ages—one and over..	73.0	115.9	36.4	121.4	38.8
1 to 4......	93.7	100.9	79.4	151.3	126.3
5 to 9......	51.4	68.9	31.9	67.9	51.2
10 to 14.....	41.4	65.1	14.4	83.5	22.7
15 to 19.....	53.4	85.7	16.9	131.7	18.2
20 to 24.....	55.6	99.8	16.5	109.4	25.6
25 to 34.....	57.9	114.5	15.7	115.3	22.5
35 to 44.....	71.6	154.3	19.4	124.8	27.1
45 to 54.....	95.2	195.1	35.5	145.6	41.1
55 to 64.....	137.2	246.5	73.2	180.7	59.0
65 to 74.....	251.4	346.0	201.1	247.2	167.9
75 and over .	477.8	482.4	496.4	315.5	353.9

* War deaths excluded.

Color Ratio of Accident Mortality.

The fatal accident rates of the white and colored races are, as we have seen, very different. We find, for example, that under 5 years of age, colored children, both males and females, show a fatal accident rate about 1½ times that of white children. In the period 5 to 9 years colored males show a fatal accident rate just a little less than the white male rate. Between 15 and 19 years, however, we observe the maximum percentage of excess of colored male over white male accident mortality. Colored females, on the other hand, show their maximum percentage of excess in accident mortality between 5 and 9 years of age. After the age period 25 to 34 years, colored males show a lower mortality than white males, which condition is probably the result of their safer occupational conditions. A similar condition of lower mortality prevails among the colored females after 45 to 54 years, but the cause for this is difficult to ascertain. The following table affords a comparison of white and colored accident mortality according to sex:

TABLE 43.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED VIOLENCE.*

Percentage, Colored of White Mortality at Specified Age Periods for Each Sex. 1911 to 1916.

Metropolitan Life Insurance Company, Mortality Experience. Industrial Department.

Age Period.	Percentage, Colored of White Mortality.	
	Males.	Females.
All ages—one and over..	104.7	106.6
1 to 4	150.0	159.1
5 to 9	98.5	160.5
10 to 14	128.3	157.6
15 to 19	153.7	107.7
20 to 24	109.6	155.2
25 to 34........	100.7	143.3
35 to 44........	80.9	139.7
45 to 54........	74.6	115.8
55 to 64........	73.3	80.6
65 to 74........	71.4	83.5
75 and over.....	65.4	71.3

* War deaths excluded.

Sex Ratio of Accident Mortality.

The differences in the stresses of occupation between the sexes are clearly reflected in the accident death rates. Considering white lives first, there was an excess of the male accident rate over the female rate in every age period of our data, with the exception of the last age group, 75 years and over. The maximum percentage of excess of male accident mortality is found between 35 and 44 years of age, when the male rate is nearly eight times greater. Among white lives between 1 and 45 years of age there is increasing percentage of excess of male over female accident mortality; after 45, the excess becomes regularly less. Colored persons did not show any such increase with age in the excess percentage of male over female mortality. The maximum percentage of excess of males over females among colored persons is found between the ages 15 and 19 years, where colored males show a fatal accident rate nearly

7¼ times that of colored females. These facts are exhibited in the following table:

TABLE 44.

Mortality from Accidental and Unspecified Violence.*

Percentage, Male of Female Mortality at Specified Age Periods for Each Color Class. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period	Percentage, Male of Female Mortality.	
	White.	Colored.
All ages—one and over..	318.4	312.9
1 to 4.........	127.1	119.8
5 to 9.........	216.0	132.6
10 to 14........	452.1	367.8
15 to 19........	507.1	723.6
20 to 24........	604.8	427.3
25 to 34........	729.3	512.4
35 to 44........	795.4	460.5
45 to 54........	549.6	354.3
55 to 64........	336.7	306.3
65 to 74........	172.1	147.2
75 and over.....	97.2	89.1

* War deaths excluded.

Fatal Accident Rate among Insured Wage Earners and Population of the Expanding Registration Area Compared.

Before proceeding to a detailed consideration of the various forms of accidents represented in our experience, it might be well, in passing, to exhibit a table of the accident death rates per 100,000 among white insured wage earners and in the general population of the expanding Registration Area of the United States. The table on page 100 affords a view of these data.

Under 20 years and after 35 years of age white males of the insured wage earners' group show a higher accident mortality than do males in the Registration Area in general. For the ages under 5 years, insured white males show an accident death rate 5 per cent. in excess, between 5 and 9 years, 17 per cent., and between 10 and 14, 14 per cent. in excess of the rates among males in the corresponding age groups of the general population. Between 20 and 34 years of age insured white male wage earners show a lower mortality from accidents than was recorded among males in the Registration Area record. Beginning with the age period 35 to 44

TABLE 45.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED VIOLENCE.*

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.
All ages—one and over....	115.9	120.8	95.9	36.4	37.4	97.3
1 to 4.....	100.9	96.4	104.7	79.4	76.5	103.8
5 to 9.....	68.9	58.8	117.2	31.9	29.6	107.8
10 to 14....	65.1	56.9	114.4	14.4	13.0	110.8
15 to 19....	85.7	85.0	100.8	16.9	15.4	109.7
20 to 24....	99.8	116.6	85.6	16.5	17.0	97.1
25 to 34....	114.5	123.4	92.8	15.7	15.5	101.3
35 to 44....	154.3	139.6	110.5	19.4	18.9	102.6
45 to 54....	195.1	156.8	124.4	35.5	27.7	128.2
55 to 64....	246.5	178.5	138.1	73.2	49.0	149.4
65 to 74....	346.0	214.3	161.5	201.1	118.1	170.3
75 and over.	482.4	418.0	115.4	496.4	534.8	92.8

* War deaths excluded.

years, however, accident mortality among white male insured wage earners begins progressively to exceed the rates among males in the general population up to and including the period 65 to 74 years. The figures for ages beyond 75 years are not significant in view of the small exposure.

The comparisons between insured white females and females in the general population also show higher death rates for the insured group, with the exception of the age period 20 to 24 years, than for the group of females in the general population. The differences are not so marked, however, as they were for the males. Below 20 years of age the percentages of excess of accident mortality among insured white females are variable. Beginning with the age period 25 to 34 years there is a progressive increase in the excess of accident fatality rates among white female wage earners over the rates for females in the general population.

Fatal Accidents According to Specific Means or Nature of Injury.

The foregoing observations on accident mortality were made without reference to the specific nature or means of injury. We shall now consider briefly the several inclusions under the general title as shown in the following table:

TABLE 46.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED VIOLENCE.*

Deaths and Death Rates per 100,000 Persons Exposed by Specified Causes and by Color and Sex. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Cause of Death.	Persons.		Rate per 100,000.			
			White.		Colored.	
	Deaths.	Rate per 100,000.	Males.	Females.	Males.	Females.
ACCIDENTS AND UNSPECIFIED VIOLENCE—TOTAL*	39268	73.0	115.9	36.4	121.4	38.8
Poisoning by food	622	1.2	1.2	1.0	1.5	1.8
Other acute poisonings	1144	2.1	2.4	1.8	2.7	2.0
Conflagration	576	1.1	1.2	.7	2.0	2.0
Burns—conflagration excepted	4714	8.8	7.2	9.3	8.4	14.3
Absorption of deleterious gases—conflagration excepted	1431	2.7	3.9	1.9	2.3	.9
Accidental drowning	5757	10.7	20.1	2.6	23.2	2.1
Traumatism by firearms	1029	1.9	3.0	.3	8.1	1.5
Traumatism by cutting or piercing instruments	93	.2	.2	.1	.7	.2
Traumatism by fall	6917	12.9	18.8	8.9	13.3	5.3
Traumatism in mines and quarries (total)	660	1.2	2.5	†	3.6	—
— in mines	612	1.1	2.4	†	3.4	—
— in quarries	48	.1	.2	†	.2	—
Traumatism by machines	905	1.7	3.4	.1	4.8	.1
Steam railroad accidents and injuries	4485	8.3	16.8	1.2	17.3	1.6
Street car accidents and injuries	1600	3.0	5.3	1.2	4.1	.9
Automobile accidents and injuries	2507	4.7	8.1	2.3	4.6	1.3
Injuries by other vehicles	1658	3.1	5.7	.9	5.6	.5
Landslide, other crushing	381	.7	1.4	.1	1.9	.1
Injuries by animals	233	.4	.9	†	1.1	—
Starvation	16	†	†	†	.1	†
Excessive cold	217	.4	.6	.1	1.5	.5
Effects of heat	1247	2.3	3.4	1.3	4.3	1.6
Lightning	96	.2	.3	†	.5	—
Electricity—lightning excepted	452	.8	2.0	†	.7	.1
Fractures—cause not specified	806	1.5	1.9	1.2	1.9	.5
Other external violence*	1722	3.2	5.4	1.2	7.5	1.4

* War deaths excluded.

† Less than .05 per 100,000.

Thus, among all accidents included in the above table, falls were the most frequent of the specified forms of violence. There were 6,917 deaths from falling recorded among insured wage earners over the six-year period 1911 to 1916, at a rate of 12.9 per 100,000 exposed. Accidental drowning was next in importance with 5,757 deaths at a rate of 10.7 per 100,000 in the six-year period under observation. Burns, excluding burns in conflagrations, followed with 4,714 deaths, or at a rate of 8.8 per 100,000 exposed. Steam railroad accidents and injuries showed 4,485 deaths, producing a rate of 8.3 per 100,000. Automobile accidents and injuries were recorded in 2,507 cases, with a death rate of 4.7 per 100,000 exposed. A detailed discussion of the facts for some of the more important of these modes of injury in external causes of death follows.

TRAUMATISM BY FALL.*

We have previously indicated that traumatism by fall was the chief form of the fatal accidents. The 6,917 deaths from this condition corresponded to a rate of 12.9 per 100,000 exposed. The

TABLE 47.

MORTALITY FROM TRAUMATISM BY FALL,* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	12.9	18.8	8.9	13.3	5.3
1 to 4	10.1	11.7	7.7	19.9	9.5
5 to 9	4.3	6.1	2.4	7.5	1.9
10 to 14	3.1	4.8	1.1	5.1	2.5
15 to 19	3.4	5.9	1.0	5.4	1.8
20 to 24	4.4	8.8	.9	5.6	2.4
25 to 34	7.2	15.5	1.9	8.8	2.3
35 to 44	13.3	31.3	3.5	16.2	2.6
45 to 54	20.9	42.6	9.7	22.1	5.8
55 to 64	39.3	64.0	27.2	37.2	14.1
65 to 74	103.8	116.5	105.4	51.8	57.5
75 and over	243.9	208.5	288.0	68.6	108.9

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* Falls from steam railroad trains, street cars, automobiles and other vehicles, as well as falls in mines or quarries, from machinery (travelling cranes, for example), and falls in burning buildings are classified under other headings. In short, not *all* falls are classified under "Traumatism by fall."

rate was highest for white males and least for colored females. Males of both the white and colored groups showed a higher rate for this cause of death than did females. The facts by age are given on page 102.

The death rate from traumatism by fall showed a high point for the ages 1 to 4 years in our experience. The rate for all persons was 10.1 per 100,000 exposed in this age group. This rate is not exceeded in any age period thereafter until the period 35 to 44 years is reached, when it begins to rise sharply. For this age period a rate of 13.3 per 100,000 exposed is recorded. After a series of increments the maximum rate for any age period is reached at the group of ages 75 years and over (243.9 per 100,000 exposed).

The fatal accident rate for this specific cause exhibits the same age characteristics for white males as we have pointed out for the entire experience with this exception: the rate for the age group 1 to 4 years is exceeded by that for 25 to 34 years instead of by that for 35 to 44 years. For white females, however, there seems to be a practically stationary death rate from this cause between 10 and 24 years. For the ages thereafter, a rapid increase in the rate is observed. For the highest age group in our series (75 years and over) the white female fatal accident rate for this specific cause exceeds the white male rate considerably. Colored males, with advancing age, show a gradually increasing death rate from this cause, beginning with the period 10 to 14 years. Colored females between 20 and 44 years show a fairly stationary rate from traumatism by fall.

The figures for the individual years from 1911 to 1916 do not show very marked differences. The highest rate was observed in 1913, 13.7 per 100,000, and the minimum in 1915, 11.9. Unlike the acute infections and the organic diseases, we may hardly expect a definite trend over a short period of years. The average rate of the six-year period, 12.9 per 100,000, may be taken as a fair indication of the present incidence of this cause of death. Nor is there any very marked difference in incidence of this condition among the insured and the general population, all ages considered. When we analyze the facts by age period, we find that up to age 25 the rates are very much the same. Beyond that period the figures are higher for the insured group. This is especially so among the males where the occupational factor is important as a fruitful source of mortality among wage earners. Thus, at some age periods of advanced life, such as 55 to 64 years, the rate is very much higher among insured white males than among males in the Registration Area, the rates being 64.0 and 38.1 per 100,000, respectively.

ACCIDENTAL DROWNING.*

The 5,757 deaths from drowning during the period 1911 to 1916 correspond to a rate of 10.7 per 100,000 exposed. As might be expected, the rate shows a very marked difference for the two sexes. The rate for white males is a little less than eight times the rate for white females. Colored males show a rate from this cause more than ten times the rate for colored females.

Deaths from Accidental Drowning by Color, Sex and by Age Period.

The death rates per 100,000 for accidental drowning, according to color, age and sex classes are presented in the following table:

TABLE 48.

MORTALITY FROM ACCIDENTAL DROWNING,* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	10.7	20.1	2.6	23.2	2.1
1 to 4	6.2	9.1	3.6	5.8	1.9
5 to 9	10.2	18.6	2.3	10.7	1.6
10 to 14	13.9	23.8	2.7	34.8	2.8
15 to 19	17.0	27.4	4.7	50.2	2.6
20 to 24	12.7	22.0	4.4	30.2	2.6
25 to 34	9.0	17.8	1.7	25.2	1.5
35 to 44	8.0	18.7	1.2	15.6	2.1
45 to 54	9.3	21.5	1.9	16.3	2.9
55 to 64	8.7	21.3	1.3	10.2	2.2
65 to 74	9.1	21.9	1.6	11.7	1.2
75 and over	9.1	22.7	2.5	—	—

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* Under this heading are classified, first, the deaths from drowning that are known to be accidental and, second, those which are not definitely reported as accidental but which can not be identified as suicidal or homicidal.

The death rates for accidental drowning are highest for persons under age 25 years. Considering all persons in this experience combined, the maximum rate is reached in the age period 15 to 19 years, 17.0 per 100,000 exposed. After this period, there is a decline in the rate from this cause up to and including the period 35 to 44 years. After that period we show a slightly variable death rate, tending to vary somewhat around an average of 9.0 per 100,000 exposed at these ages.

White males show a maximum rate in the period 15 to 19 years and a declining rate thereafter up to and including 25 to 34 years. Between 45 and 74 years, the rate is almost stationary at a little more than 21 per 100,000 exposed.

The colored male statistics also show a maximum rate between 15 and 19 years of age, 50.2 per 100,000 exposed. The reader will observe that this rate is practically twice the rate recorded for white males between these ages. The colored male rate is higher than the white male rate from 10 years up to and including the age period 25 to 34 years, but is lower thereafter.

Considering the series of years 1911 to 1916, we are again unable to detect any distinct downward tendency in the death rate from this cause. The rates seem to vary but slightly from a figure of a little more than 10 per 100,000 exposed for all classes in the experience. The highest death rate was recorded in 1913, 12.1 per 100,000, and the lowest in 1916, 9.7 per 100,000. During this period the death rate from this cause showed two points of maximum incidence, in 1913 and in 1915. The high rate for 1913 is perhaps explained by the floods in the Ohio River Valley in the spring of that year. The figures for 1915 result from the inclusion of the deaths reported in connection with the EASTLAND disaster in Chicago. There were, in fact, 171 deaths of policyholders reported as arising out of this catastrophe.

The death rate from drowning among white male policyholders was higher at every age period with the exception of the years under five than among males in the general population. The reader will observe that a comparison of the death rates for this accidental cause in the two experiences is first conditioned by the differences in the areas covered by the two experiences. It is evident that for a population situated near water courses, where there is opportunity for employment in the pursuits connected with navigation, one may expect a higher death rate for accidental drowning. We are not able to say whether the differences in the hazards of accidental drowning are greater in the localities covered by this Company than in those areas comprising the total Registration Area of the United States.

BURNS (CONFLAGRATION EXCEPTED).*

The 4,714 deaths from burns in this mortality experience of insured wage earners during the six-year period 1911 to 1916 represented a rate of 8.8 per 100,000 exposed.

The rate for this cause among white males was lower than among the other three color and sex classes of this experience. The colored death rates for males and females were higher than the white death rates in the corresponding sex classes. Colored females showed a rate for burns practically one and one-half times that of white females.

The death rates according to color, sex and age distinctions are set forth in the following table:

TABLE 49.

MORTALITY FROM BURNS (CONFLAGRATION EXCEPTED),* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	8.8	7.2	9.3	8.4	14.3
1 to 4.....	43.8	42.8	40.0	74.3	76.8
5 to 9......	10.4	6.7	12.5	9.4	30.1
10 to 14.....	2.6	1.2	3.7	2.5	7.1
15 to 19.....	2.1	1.1	2.7	2.6	5.9
20 to 24.....	3.0	1.7	3.3	3.0	7.7
25 to 34.....	3.2	1.9	3.7	3.3	5.0
35 to 44.....	4.3	3.2	4.6	4.6	6.0
45 to 54.....	6.7	4.6	7.5	3.9	12.8
55 to 64.....	10.0	5.8	11.4	7.8	20.7
65 to 74.....	20.3	8.8	23.4	23.4	55.2
75 and over..	41.8	17.0	49.4	41.2	118.0

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* Burns and scalds due to railroad, machinery, and mining accidents, as well as those caused by electricity and lightning are not classified under this heading. This explains, to some extent, the comparatively low rate for males.

The age characteristics of this cause of death present a maximum rate in the entire experience at the ages under 5 years, a decline to a minimum between the ages 15 to 19 years and a gradual rise in the rate for succeeding age periods to a figure approaching the maximum at ages 75 years and over. The conformation of the mortality curve for burns is in general the same for each of the color and sex classes of this experience, although, as we have pointed out, the actual figures show considerable differences.

From the figures at hand no upward or downward tendency of the death rate for burns is evident.

The incidence of fatal burns is higher among the insured than in the general population at a number of age periods. Thus, among insured white males, there is an excess in the ages under 10, and after 45. The figures for all ages combined are in favor of the general population, 6.2 per 100,000 as compared with 7.2 for insured white males. Comparison of the mortality facts for burns among insured white females and among females in the general population shows no important differences in the experience of the two groups.

STEAM RAILROAD ACCIDENTS AND INJURIES.

Fatalities arising out of railroad accidents are an important element in mortality experiences generally. Among the wage earners represented in this study we recorded during the period 1911 to 1916, 4,485 deaths arising from railroad accidents and injuries. These deaths corresponded to a rate of 8.3 per 100,000 exposed. For colored males we recorded a higher rate, 17.3 per 100,000, than for white males, 16.8 per 100,000. The colored female rate is higher than the corresponding white rate, but that for each group of females is low.

The death rate from this cause shows a minimum at the ages under 5 years and a maximum at the highest age group in this discussion. There is a fairly progressive rise in the rate by age period throughout life. Between 20 and 54 years of age, however, there is no upward tendency. After the latter age period the rate rises quite sharply. The same general age charateristics in the mortality rate from this cause are shown for white males as for the general experience. White females show no important mortality from this cause at the ages under 45 years. Beyond that age, however, a rising rate is in evidence for this group.

The table below exhibits the data for steam railroad accidents and injuries according to the several color, sex and age classes:

TABLE 50.

MORTALITY FROM STEAM RAILROAD ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	8.3	16.8	1.2	17.3	1.6
1 to 4......	1.1	1.5	.7	.6	—
5 to 9......	2.3	3.9	.8	3.6	.3
10 to 14.....	3.5	6.1	.7	7.0	.6
15 to 19.....	8.4	15.2	1.2	19.8	1.5
20 to 24.....	11.8	25.1	.7	25.0	1.1
25 to 34.....	11.3	26.6	.7	20.7	1.6
35 to 44.....	10.7	26.7	.7	19.8	2.4
45 to 54.....	11.3	27.1	1.7	21.5	1.8
55 to 64.....	15.6	35.3	3.6	27.6	2.2
65 to 74.....	17.3	39.4	4.1	23.4	4.7
75 and over..	17.8	34.0	5.9	41.2	27.2

Colored males show a rather variable rate with age. There is a rising incidence for the ages under 25 years. Between 25 and 74 years the rate tends to vary somewhat between 20 and 28 per 100,000 exposed. Beyond the latter age period our figures are not of much significance. The rates by age for colored females are too small and too variable to warrant extended discussion.

Considering the period as a whole, there appears to be a decrease in the rate, especially among white males. The three years, 1914 to 1916, however, show a slight upward tendency.

In the following table we present our data for railroad accidents and injuries for single years from 1911 to 1916:

TABLE 51.

MORTALITY FROM STEAM RAILROAD ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916	8.3	16.8	1.2	17.3	1.6
1916....	7.9	15.3	1.3	18.5	1.8
1915....	7.4	15.0	1.0	16.0	1.1
1914....	7.5	15.1	1.0	16.0	1.3
1913....	9.0	18.8	1.1	16.9	1.2
1912....	9.2	18.5	1.4	17.6	2.2
1911....	9.5	19.2	1.3	18.6	2.2

AUTOMOBILE ACCIDENTS AND INJURIES.

Automobile accidents and injuries are beginning to constitute an important cause of accident fatality. In the six years under discussion we registered 2,507 deaths from this cause. The death rate

TABLE 52.

MORTALITY FROM AUTOMOBILE ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	4.7	8.1	2.3	4.6	1.3
1 to 4......	3.7	4.5	2.9	3.8	1.3
5 to 9......	8.6	12.5	4.9	10.4	3.2
10 to 14.....	5.1	8.5	1.8	6.3	1.6
15 to 19.....	2.9	4.9	1.2	3.5	.3
20 to 24.....	3.2	5.9	1.5	2.0	.8
25 to 34.....	3.0	6.4	1.0	2.9	.9
35 to 44.....	3.2	6.6	1.6	3.6	.3
45 to 54.....	4.4	9.1	2.0	3.3	1.8
55 to 64.....	7.3	14.1	3.6	7.8	2.2
65 to 74.....	9.5	18.6	4.5	6.7	4.7
75 and over..	10.1	17.0	6.7	13.7	—

was 4.7 per 100,000 exposed. The highest death rate was shown for white males and the least for colored females. The color, sex and age statistics for automobile accidents and injuries are shown on previous page (Table 52).

There is a high point of mortality from automobile accidents and injuries at each end of the age curve. There is one very high rate in childhood between 5 and 9 years and another in old age at the period 75 years and over, although the ages beginning with 55 years are all heavily weighted with automobile deaths. Males of both color groups in this experience show a higher death rate than do females.

According to our records there is a progressively increasing death rate year by year from this cause. In 1911 we recorded a rate of 2.3 per 100,000 exposed. In 1916 the rate had increased to 7.4 per 100,000. This corresponds to an increase of 221.7 per cent. in the rate. The following table and Chart XII on page 111 show the general trend of the death rate for automobile fatalities:

TABLE 53.

MORTALITY FROM AUTOMOBILE ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

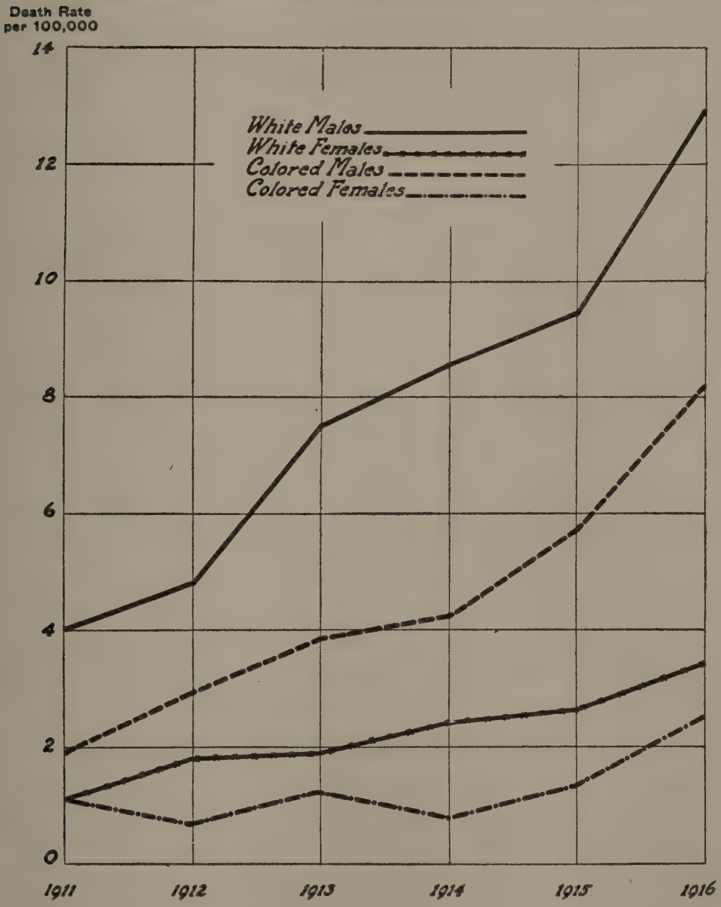
Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916	4.7	8.1	2.3	4.6	1.3
1916....	7.4	12.9	3.4	8.2	2.5
1915. .	5.4	9.4	2.6	5.7	1.3
1914 ...	4.8	8.5	2.4	4.2	.8
1913....	4.1	7.5	1.9	3.8	1.2
1912....	3.0	4.8	1.8	2.9	.7
1911....	2.3	4.0	1.1	1.9	1.1

Available population mortality data show a similarly increasing rate for automobile fatalities. This fact calls for further inquiry into the causes contributing to this category of traffic accidents, especially in cities where the growth of population and the volume of street traffic conduce to an increase in liability to automobile accidents.

Chart XII.—Mortality from Automobile Accidents and Injuries

Death Rates per 100,000 Persons Exposed By Single Years 1911 to 1916

Experience of Metropolitan Life Insurance Company, Industrial Department



STREET CAR ACCIDENTS AND INJURIES.

Fatalities registered as street car accidents and injuries in this experience included deaths, not only of persons riding on or operating street cars, but also those deaths on elevated and subway trains and on tracks and rights of way of street railways, interurban roads operated electrically, subways and elevated railroads. There were registered 1,600 deaths from this cause, the corresponding rate being 3.0 per 100,000 exposed in the six years under observation. The rate is highest among white males and least among colored females.

There is a fairly high rate for the ages under 5 years and a declining one thereafter through the age period 20 to 24 years. After that age group, however, the rate increases up to the maximum at the highest age group in our series. The same general observations apply to the experience of white males and white females. For the former, however, the age groups 5 to 9 years and 20 to 24 years show increases over those immediately preceding, while for the latter the decline continues through the period 25 to 34 years. The data for colored lives according to age group are based upon a small

TABLE 54.

MORTALITY FROM STREET CAR ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	3.0	5.3	1.2	4.1	.9
1 to 4......	2.7	3.0	2.5	1.9	1.9
5 to 9......	2.6	3.6	1.6	3.2	1.3
10 to 14.....	1.6	2.6	.6	1.9	.9
15 to 19.....	1.6	2.4	.5	4.5	.6
20 to 24.....	1.4	2.7	.4	2.0	.3
25 to 34.....	2.1	4.9	.2	3.4	.2
35 to 44.....	3.1	7.5	.5	4.6	.8
45 to 54.....	4.9	11.1	1.4	5.2	2.4
55 to 64.....	7.8	15.3	3.8	9.0	1.3
65 to 74.....	10.3	20.6	4.4	13.3	2.3
75 and over..	22.1	41.1	12.6	27.4	—

number of deaths under 20 years of age and there is, therefore, some irregularity in the rates for the divisional periods of life. From twenty years of age upward among colored males an increasing death rate from this cause is found.

The table on page 112 gives the rates for street car accidents, and injuries by color, sex and by age period.

For the six years under discussion a generally declining death rate from this cause is observed. This is in contradistinction to the observed facts for automobile accidents and injuries. The following table gives a view of the trend of this phase of the mortality experience for the period 1911 to 1916:

TABLE 55.

MORTALITY FROM STREET CAR ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916	3.0	5.3	1.2	4.1	.9
1916....	2.6	4.4	1.2	3.5	.9
1915....	2.2	3.9	.9	2.1	.9
1914....	2.7	4.5	1.1	4.2	1.4
1913....	3.6	6.4	1.4	4.6	1.2
1912....	3.5	6.4	1.4	4.6	.5
1911....	3.6	6.7	1.3	5.8	.5

INJURIES BY OTHER VEHICLES.

The record of deaths from injuries by "other vehicles" is also available. Under this group, 1,658 deaths were included arising from accidents and injuries to passengers, pedestrians, drivers or riders on wagons, carriages, bicycles and other miscellaneous forms of vehicles not motor driven. The rate, 3.1 per 100,000 exposed, is similar to that for street car accidents and injuries.

The following table gives the rates per 100,000 by color, sex and age period:

TABLE 56.

MORTALITY FROM INJURIES BY OTHER VEHICLES, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored Males.
		Males.	Females.	
All ages—one and over.	3.1	5.7	.9	5.6
1 to 4........	3.8	4.6	3.2	2.6
5 to 9........	3.8	6.0	1.5	5.5
10 to 14.......	1.6	2.8	.5	2.8
15 to 19.......	1.8	3.0	.5	4.5
20 to 24.......	2.0	4.0	.5	2.6
25 to 34.......	2.4	5.6	.3	3.9
35 to 44.	3.2	7.7	.3	6.0
45 to 54	4.6	10.1	1.0	10.7
55 to 64.......	5.0	11.4	.9	12.0
65 to 74.......	8.2	16.1	3.1	16.7
75 and over....	5.3	12.8	.8	13.7

There seems to be a slight downward tendency in this group of specific causes of accidental injury. The following table gives a survey of the death rates over the period 1911 to 1916:

TABLE 57.

MORTALITY FROM INJURIES BY OTHER VEHICLES, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.
		Males.	Females.	Males.
1911 to 1916..........	3.1	5.7	.9	5.6
1916........	2.8	5.4	.7	6.0
1915........	3.0	5.6	.8	6.2
1914........	2.9	5.4	.9	4.4
1913........	3.4	6.4	1.4	3.6
1912........	3.4	6.2	.9	7.3
1911........	3.1	5.5	1.0	6.0

The death rate for this group of miscellaneous vehicular injuries is stationary for the age periods under 10 years, and declines to a minimum rate between 10 and 14 years. It then gradually rises to a maximum in the age period 65 to 74 years. There was a slightly higher rate for white males than for colored males. White females had a low rate of .9 per 100,000 exposed. The deaths among colored females were too few to give any significance to the rates. No figures for this class are therefore presented.

TRAUMATISM BY MACHINES.*

A total of 905 deaths from traumatism by machines is recorded. It will be understood that this title includes deaths by means of machines in most industries and through mechanisms such as elevators, which are not always concerned in industrial processes. This latter fact does not materially affect our figures, however, for the main working period in life. The experience available, according to age period, for all persons exposed to risk in this investigation, and for white males and colored males is shown in the following table. The experience for females is not significant.

TABLE 58.

MORTALITY FROM TRAUMATISM BY MACHINES,* CLASSIFIED BY COLOR FOR MALES, AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons in Total Experience.	White Males.	Colored Males.
All ages—one and over....	1.7	3.4	4.8
1 to 14........	.3	.4	.5
15 to 19........	2.3	4.2	5.1
20 to 24........	2.1	4.5	4.6
25 to 34........	1.9	4.0	6.5
35 to 44........	2.7	6.7	6.2
45 to 54........	3.2	7.7	9.8
55 to 64........	3.0	7.7	6.6
65 to 74........	2.3	6.0	1.7
75 and over.....	1.9	1.4	13.7

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* Deaths caused by machinery accidents in mines and quarries are classified under title No. 173 (Traumatism in mines and quarries); those due to locomotives are charged to one of the subtitles of title No. 175 (Steam railroad accidents and injuries).

The rate for white males does not vary much from the figure of four per one hundred thousand between fifteen and thirty-five years of age. The rate rises after that age to a figure of 7.7 per one hundred thousand between forty-five and sixty-five years of age and declines thereafter. The rates for this cause of death are, in general, higher among colored males than among white males. The maximum rate for colored males was observed in the age period forty-five to fifty-four years, when it was 9.8 per 100,000 exposed.

There was a fairly stationary tendency in the death rate from this cause in the present experience covering the period 1911 to 1916. The following table gives the facts for each calendar year in the investigation:

TABLE 59.

Mortality from Traumatism by Machines,* Classified by Color for Males.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons in Total Experience	White Males.	Colored Males.
1911 to 1916	1.7	3.4	4.8
1916	1.7	3.4	5.3
1915	1.4	2.9	3.4
1914	1.5	3.3	2.9
1913	2.0	4.1	5.4
1912	1.7	3.2	5.6
1911	1.8	3.4	6.9

* See footnote for Table 58 on preceding page.

A brief comparison of our data with those for the Registration Area shows that for the latter part of the main working periods of life the death rate from traumatism by machines is higher among insured white males than among males in the corresponding age groups in the Registration Area of the United States. No precise interpretation can be placed upon this fact, however, because we do not have any clue as to the approximate number of persons in both experiences exposed to risk from machinery. But it is reasonable to assume that there is a considerably larger proportion of persons exposed to machine hazards in a group such as that comprised in the insurance experience than there is in the general population of the Registration Area.

"OTHER ACUTE POISONINGS"* (FOOD POISONINGS EXCEPTED).

All accidental poisonings in this experience have been reported under two heads: "poisoning by food" and "other acute poisonings." The second of these titles, which includes the larger number of these deaths, relates to those caused by solid or liquid poisons, excepting alkaloid products of putrefaction and other poisons in food products.

In this experience for insured wage earners 1,144 deaths from this specific cause of accidental violence occurred. The rates are slightly higher for the colored than for the white of each sex.

The age and sex characteristics for the white group only are given in the following table:

TABLE 60.

MORTALITY FROM "OTHER ACUTE POISONINGS,"* WHITE PERSONS CLASSIFIED BY SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons in Total Experience.	White.	
		Males.	Females.
All ages—one and over....	2.1	2.4	1.8
1 to 4.........	7.9	7.6	7.1
5 to 9.........	.8	1.0	.5
10 to 14........	.2	.3	.2
15 to 19........	.8	.5	1.2
20 to 24........	1.7	1.4	1.7
25 to 34........	2.2	2.4	2.2
35 to 44........	2.1	2.5	1.9
45 to 54........	2.3	4.3	1.3
55 to 64........	2.7	4.8	1.8
65 to 74........	3.5	5.6	2.5
75 and over.....	4.3	7.1	3.3

"Other acute poisonings" show the maximum death rate under 5 years of age, the minimum death rate between 10 and 14 years and a fairly regularly rising rate thereafter. Between 25 and 54 years there is a slackening in the rise in the death rate. After 55 years of age the rate rises again rapidly. The rates for males exceed those for females very generally throughout life.

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* Deaths reported from "poisoning," "carbolic acid poisoning," "bichloride of mercury poisoning," etc., although not reported as accidental, are classified here unless identified as due to suicide or homicide. Deaths caused by accidental inhalation of poisonous gases are classified under another heading; see page 119.

A slight downward tendency in the death rate for this cause is in evidence recently. In 1914 the maximum rate (2.6 per 100,000) was registered; the minimum rate was 1.6 per 100,000 in 1916. Considering the series of years from 1911 to 1916, we may perhaps be justified in concluding that recent efforts toward restriction of the sale of poisonous substances have had some favorable influence upon the death rate from acute accidental poisonings. We must remember, however, that the recently increased tendency to specify suicidal and homicidal findings in cases which would have been formerly returned as undefined violence, may have had some influence in reducing the recorded death rate for acute accidental poisonings. The following table gives the death rates for "Other acute poisonings" (food poisonings excepted) by single calendar years during the period 1911 to 1916 classified according to color and sex:

TABLE 61.

MORTALITY FROM "OTHER ACUTE POISONINGS,"* CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	2.1	2.4	1.8	2.7	2.0
1916.......	1.6	1.8	1.5	1.8	1.4
1915.......	2.0	2.2	1.5	3.4	2.4
1914.......	2.6	3.3	2.1	3.5	2.1
1913.......	2.2	2.4	1.9	3.2	1.5
1912.......	2.3	2.4	2.1	2.5	2.4
1911.......	2.2	2.3	2.2	1.7	2.2

* See footnote on page 117.

The available population experience also shows a slightly downward trend.

ABSORPTION OF DELETERIOUS GASES.*

By far the largest proportion of deaths included under this title were caused by accidental inhalation of illuminating gas. There was, of course, a significant number of deaths from the absorption of other poisonous gases and vapors, such as sewer gas, anesthetic vapors, and gases evolved in the domestic and industrial operation of stoves and furnaces.

The following table gives the data for this cause of death with respect to color, sex and age classes of the experience:

TABLE 62.

MORTALITY FROM ABSORPTION OF DELETERIOUS GASES,* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.
Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	2.7	3.9	1.9	2.3	.9
1 to 4	1.0	1.0	1.0	1.3	1.3
5 to 9	.7	.7	.7	—	.3
10 to 14	.8	1.2	.4	.6	.3
15 to 19	1.1	1.2	1.2	1.0	.6
20 to 24	1.8	2.7	1.1	1.6	1.3
25 to 34	2.3	3.5	1.5	2.8	1.5
35 to 44	3.4	6.8	1.7	3.6	.7
45 to 54	5.4	10.1	3.2	5.5	1.0
55 to 64	8.5	15.6	5.7	1.8	.4
65 to 74	12.2	21.0	8.6	3.3	1.2
75 and over....	20.2	28.4	18.4	—	—

There were 1,431 deaths reported for this cause. This number of deaths represented a rate of 2.7 per 100,000 persons exposed. The highest death rate was recorded for white males, 3.9 per 100,000, the next highest for colored males, 2.3 per 100,000, followed by the rate for white females, 1.9 per 100,000. The death rate from this cause among colored females was .9 per 100,000 of such persons exposed. Under twenty years of age the rate for both sexes varies from .7 to 1.1 per 100,000 persons exposed. After twenty years of age it rises gradually from a figure of 1.8 per 100,000 in the age group 20 to 24 years to 20.2 in the highest age group in this series. Under twenty years of age, only one period shows a difference between the death rate for this cause of white males and white females. Beginning with the age period 20 to 24 years, however, the rate for accidental poisoning by deleterious gases among white males was significantly higher than that among white females. Thus, for the age period 25 to 34 years, white males showed a rate of 3.5 per 100,000 and white females one of only 1.5 per 100,000. In the two next higher groups the excess of mortality among males was even more pronounced. In the age period 55 to 64 years the death rate for this cause among white males was 15.6 per 100,000 and among white females 5.7 per 100,000. The death rate among colored males was much higher after 25 years of age than among colored females.

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* Deaths reported as due to "asphyxia by gas," "gas poisoning," "illuminating gas poisoning," etc., although not reported as accidental, are classified here unless identified as due to suicide or homicide.

TABLE 63.

MORTALITY FROM ABSORPTION OF DELETERIOUS GASES, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females
1911 to 1916.......	2.7	3.9	1.9	2.3	.9
1916.......	2.9	4.5	1.8	3.3	1.4
1915.......	2.3	3.6	1.6	1.3	.5
1914.......	2.9	4.2	2.1	1.5	1.3
1913.......	2.5	3.4	1.9	2.2	1.0
1912.......	3.0	4.3	2.2	3.7	.7
1911.......	2.3	3.4	1.8	1.5	.7

The death rate throughout the period 1911 to 1916 seems to be fairly stationary for insured wage earners. It should be recalled that in former years a fairly significant number of deaths from illuminating gas poisoning was registered under this cause of death title which, if more modern methods of certifying causes of death had then been in vogue, would have been recorded under "suicide by asphyxia." This factor of improvement in the designation of illuminating gas deaths as suicides does not affect the present figures from 1911 onward as much as it does other figures which refer back perhaps fifteen years or more. It should be borne in mind, however, in viewing the table on page 120, that this matter of increased precision in the certification of causes of death may have affected our figures somewhat and that there may have been, therefore, an actual, though slight, decline in the death rate for this cause of death.

TRAUMATISM BY FIREARMS.*

Accidental deaths due to injury by firearms were recorded in 1,029 cases in this mortality experience at a rate of 1.9 per 100,000 persons exposed. This cause of death has a distinct color and sex incidence. The mortality rate among colored lives is decidedly in excess of that among white lives. Colored males, for instance, show a rate of 8.1 per 100,000 as compared with a rate of 3.0 for

TABLE 64.

MORTALITY FROM TRAUMATISM BY FIREARMS,* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	1.9	3.0	.3	8.1	1.5
1 to 4......	.9	.9	.5	2.6	3.2
5 to 9......	1.4	1.9	.4	5.8	1.6
10 to 14.....	3.2	5.4	.3	10.4	1.6
15 to 19.....	4.0	6.0	.8	18.5	.6
20 to 24.....	2.5	3.5	.2	13.5	3.7
25 to 34.....	1.8	2.5	.1	10.1	1.2
35 to 44.....	1.5	2.2	.3	5.2	2.0
45 to 54.....	.6	1.2	.2	.7	.5
55 to 64.....	.7	1.2	.2	1.8	—
65 to 74.....	.8	1.5	.4	1.7	—
75 and over..	—	—	—	—	—

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* Under this title are classified, also, deaths reported from "gunshot wound," "shot," etc., without qualification as to accidental, suicidal or homicidal character. Every effort is made to obtain definite information, however, in such cases, and they constitute only a small proportion of the 1,029 deaths classified here.

white males. A death rate of 1.5 per 100,000 is registered for colored females and a rate of only .3 per 100,000 for white females. The table on page 121 presents a statement of the death rates according to the several color, sex and age classes in this investigation.

Among white males the highest death rate for this means of injury occurs between 15 and 19 years of age with a declining death rate thereafter up to the advanced ages in this series. Among colored males, also, the highest death rate occurs between 15 and 19 years of age. It will be noted also that the death rate for this cause between 5 and 9 years among colored males (5.8 per 100,000) is almost as high as the maximum rate for white males (6.0). A very large proportion of these deaths in late childhood and in adolescence are caused by children playing with firearms and by reckless youths in the pursuit of sport. A considerable number, no doubt, are of the "didn't know it was loaded" type. At this time of life death rates from all causes are at a reasonably low level. A further reduction of mortality in late childhood and adolescence could be accomplished, no doubt, by concentration upon the single fact of accidental death from firearms.

TABLE 65.

MORTALITY FROM TRAUMATISM BY FIREARMS, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	1.9	3.0	.3	8.1	1.5
1916	1.9	3.1	.3	8.4	.8
1915	1.7	2.7	.4	5.7	1.7
1914	2.0	2.7	.4	10.2	1.9
1913	2.2	3.5	.5	9.3	1.5
1912	2.0	3.1	.3	7.9	2.1
1911	1.7	2.8	.3	7.3	1.1

The figures for the period 1911 to 1916, unfortunately, do not indicate any marked declining tendency in the death rate from this cause. The rate for each year approaches closely that for the sexennium, 1.9 per 100,000 exposed. In recent years in the Registration Area of the United States a practically stationary death rate has also been observed. How far the figures in each experience are reliable for purposes of determining the general trend of mortality from accidental shooting we cannot say at present. A considerable number of deaths have been reported in the more recent years of our experience as accidentally due to the use of firearms which would have been reported in former years in such manner as to justify tabulation under some indefinite title such as "Other external violence." The table on page 122 gives a brief view of the course of accidental mortality from firearms during the period 1911 to 1916.

Accident Fatalities Arising Out of or in the Course of Employment.

The records of accident mortality of insured wage earners present a very favorable opportunity for the collection of informing statistics on fatalities arising out of or in the course of employment. We have already observed in the preceding sections a clear indication that these industrial policyholders suffer from higher accident death rates, almost uniformly, at ages where the occupational factor plays a part. Provision was therefore made early in the course of this study to distinguish and keep a record of those deaths where the occupation was clearly the primary cause of the accident. The period covered is only five years, from 1912 to 1916, inclusive. Although it was not possible to discover every case of occupational origin, there is nevertheless sufficient evidence to show that the cases overlooked or disguised were relatively few. In order to confine the data to the ages at which policyholders are gainfully employed the tabulations of deaths due to occupational violence have been limited to white males at the ages 15 years and over.

Thus, between 1912 and 1916, there were recorded 14,151 deaths from a group of selected and specific accidental causes of death, in which we might reasonably expect that occupation would play an important part. This number of 14,151 deaths does not, therefore, cover all of the deaths from occupational violence among white males 15 years of age and over. The following table gives the total number of accidental deaths reported for the specified accidents and injuries and the number and percentage of deaths of occupational origin:

TABLE 66.

NUMBER OF DEATHS FROM SPECIFIED ACCIDENTAL CAUSES OF DEATH AND NUMBER AND PERCENTAGE OF SUCH DEATHS DUE TO OCCUPATIONAL STRESS.

White Males, Fifteen Years of Age and Over, 1912 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Cause of Death.	Total Deaths From Specified Form of Violence.	No. Deaths of Occupational Origin.	Percent. Deaths of Occupational Origin.
TOTAL SPECIFIED CAUSES......	14,151	3,963	28.0
Conflagration	149	23	15.4
Burns..........................	333	61	18.3
Absorption of deleterious gases.....	665	41	6.2
Accidental drowning..............	2,381	151	6.3
Traumatism by fall..............	2,889	685	23.7
Traumatism in mines and quarries..	443	405	91.4
Traumatism by machines..........	585	473	80.9
Railroad accidents and injuries.....	2,710	954	35.2
Street car accidents and injuries....	710	137	19.3
Automobile accidents and injuries	890	97	10.9
Other vehicular acc. and injuries ..	733	321	43.8
Other crushing acc. and injuries....	205	133	64.9
Injuries by animals...............	112	43	38.4
Electricity—lightning excepted.....	323	200	61.9
Fractures—cause not specified	311	4	1.3
Other external violence............	712	235	33.0

Out of the group of accidents selected from this experience of white males, 15 years of age and over, we found 28 per cent. to have been certified as arising out of or in the course of employment. For the various types of accidents, or means of injury, the percentage of occupational deaths varies. Thus for traumatism in mines and quarries the highest percentage of occupational accidents was registered, namely, 91.4. Under "absorption of deleterious gases" there was recorded the lowest percentage for any of the definite types of accidental violence, 6.2. It was found that 24 per cent. of the falls were certified to have occurred in the course of the employment of the deceased. We do not deem it desirable at the present time to apply these ratios to any other body of data than to the one we have given. Our table and the accompanying text will, it is hoped, stimulate further statistical inquiry, perhaps in our published official vital statistics, into the number and percentage of deaths from violence arising out of industry.

An interesting corollary to the foregoing text on the probable number of deaths due to occupational causes, is the comparison of the variation from year to year in the ratio of deaths due to such occupational stress. The following table gives a survey of this situation by single years from 1912 to 1916:

TABLE 67.

MORTALITY FROM A GROUP OF SPECIFIED ACCIDENTAL CAUSES OF DEATH. NUMBER AND PERCENTAGE OF DEATHS DUE TO OCCUPATIONAL STRESS.

Single Years in Period 1912 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Total Deaths from Group of Specified Accidental Causes.	Number of Deaths of Occupational Origin.	Per Cent. Deaths of Occupational Origin.
1912 to 1916	14,151	3,963	28.0
1916......	3,237	816	25.2
1915......	2,742	638	23.3
1914......	2,683	777	29.0
1913......	2,931	948	32.3
1912......	2,558	784	30.6

It would appear, therefore, from these figures that the proportion of deaths resulting from occupational accidents was on the decline during the five years under observation. The increase in the general accident rate for males at the ages 15 years and over must be due to other than occupational dangers, to which conclusion much other evidence points.

Trend of the Death Rate for Accidents.

The table on page 126 gives the total accident death rate from 1911 to 1916, qualified according to the color and sex classes of our data.

We observe from the following data a rather variable accident death rate. The maximum figure in the total experience was recorded in 1913 at 77.6 deaths per 100,000 persons exposed and the minimum in 1915 with a rate of 67.3. Perhaps if we had a longer series of annual rates to consider, we should be able to detect a slight tendency toward decline in the death rate from accidents of all kinds. From the figures at hand we are unable to say definitely whether there has been any considerable reduction in the total accident rate among insured wage earners. The conditions of grave hazard in American life and industry may not have improved, therefore, to any great extent.

TABLE 68.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED FORMS OF VIOLENCE,* CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	73.0	115.9	36.4	121.4	38.8
1916........	73.2	118.7	34.8	122.7	37.5
1915........	67.3	105.8	34.7	108.5	37.7
1914........	69.9	109.3	36.5	118.2	35.5
1913........	77.6	124.9	37.2	134.8	39.6
1912........	73.8	115.2	37.2	128.4	41.2
1911........	77.4	123.6	38.8	116.5	41.6

* War deaths excluded.

For white females and for colored females we are able to detect a fairly consistent but slight downward trend of total accidents. This is perhaps an indication that the graver hazards which surround women in home life have been mitigated in part by the various educational and other efforts toward security of the person from accidental violence. The white male total accident rate fluctuates somewhat from year to year and from a view of the figures in our present series we do not feel able to say that there has been any marked change for better or worse in the accident situation as it affects this group. The colored male total accident rate likewise offers no particularly encouraging evidence that the graver general accident hazards surrounding wage earners have been mitigated to any great extent.

SUICIDES.†

The suicide problem has in recent years attained considerable prominence in discussions of the aims and purposes of preventive medicine. Suicide is often a preventable source of mortality, especially when it is recalled that in many cases the suicidal impulse is the end product of a psychosis, which, if treated in good time, might have been relieved. That suicide is a serious source of mortality is indicated by the fact that in the six-year period of this experience 6,542 deaths from this cause were recorded. Interest attaches also to this mass of deaths because they have occurred among a group of wage earners. If, as has been supposed, the suicide death rate is a measure of the mental health of a people, the figures at our disposal should help us determine an important characteristic of the American industrial population in relation to that of other groups of the population. In the following table we present a statement of the suicide death rates for each of the color and sex classes of our data. Chart XIII graphically illustrates these age data.

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† Under "Suicides" are classified only those cases in which the fact of suicide or of attempt at suicide is clearly shown. By careful "editing" of our data relating to cause of death, hundreds of cases originally reported under such terms as "poisoning," "inhalation of gas," "drowning," "gunshot wound," "cut" and others have been added to this title instead of being placed under the class "accidental or unqualified."

TABLE 69.

Mortality from Suicide (All Forms), Classified by Color, Sex and by Age Period.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

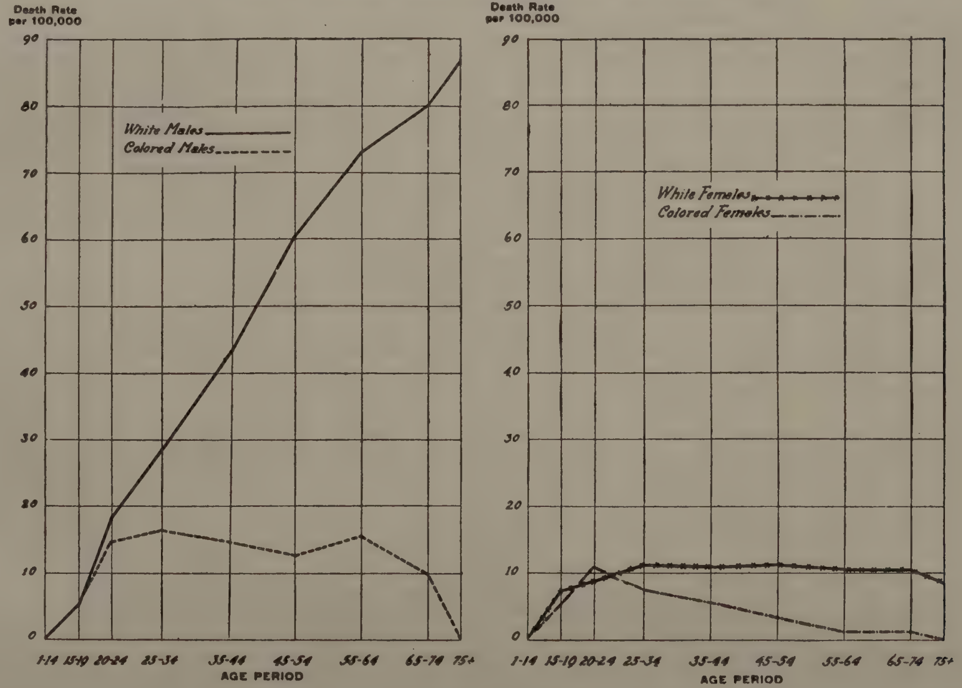
Age Period.	Persons.	White.		Colored.	
		Male.	Female.	Male.	Female.
All ages—one and over	12.2	20.1	6.8	10.1	4.9
1 to 14.....	.1	.2	.1	.3	.3
15 to 19.. ..	6.0	5.0	7.2	5.1	5.3
20 to 24.....	13.0	18.0	8.7	14.8	11.9
25 to 34.....	17.0	27.9	11.1	16.3	7.4
35 to 44.....	20.9	42.9	10.9	14.8	5.7
45 to 54.....	26.5	60.1	11.1	12.7	3.4
55 to 64.....	31.3	72.8	10.4	15.6	1.3
65 to 74.....	34.0	79.7	10.5	10.0	1.2
75 and over .	34.1	86.5	8.4	—	—

At all ages combined, the rate was 12.2 per 100,000 persons exposed. The group of white males shows the highest rate of any of the color or sex classes, followed by colored males, by white females and finally by colored females. Males of each color group show decidedly higher suicide rates than do females.

Chart XIII.—MORTALITY FROM SUICIDE—ALL FORMS

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



Suicide Mortality According to Color, Sex and Age.

The age characteristics of these suicide data are also of significance. Beginning with a rate of 6.0 per 100,000 between 15 and 19 years, we recorded a rising rate up to and including the highest significant age period, 65 to 74 years. The age group 75 years and over has been disregarded because of its heterogeneous age composition and the small number of lives exposed and of deaths reported. This gradual upward slope of the curve for suicide mortality probably reflects very largely the experience of the white male group included in the figures for all persons. For white males there is quite a sharp rise in the curve of suicide mortality, from a figure of 5.0 per 100,000 between the ages 15 and 19 years to a rate of 79.7 per 100,000 at the age period 65 to 74 years. White females do not show as clearly this phenomenon of increasing suicide mortality with age. Beginning with a figure of 7.2 per 100,000 at the age period 15 to 19 years, there is a gradual increase to a rate of 11.1 for the age period 25 to 34 years. From this group up to and including the period 65 to 74 years there is a practically stationary suicide rate for white females, with little variation from a figure of 10.5 per 100,000.

The suicide rate for colored males does not show any tendency throughout the entire range of life toward either a decrease or an increase with advancing age. After the age period 20 to 24 years for colored females, we observe a distinct drop in the suicide rate with advancing years, from a figure of 11.9 per 100,000 in the first named age period to a rate of 3.4 per 100,000 in the period 45 to 54 years, the last age group for which we have significant figures.

In view of the importance of racial characters of suicide mortality, it will be of some interest to consider the comparative ratios of some of these mortality rates for the several color classes by sex and age.

Ratio of Suicide Mortality by Color.

In a preceding section we indicated the lower suicide mortality rate among colored persons. The colored male suicide rate was only 50 per cent. of that shown for white males at all ages combined. But this relation varies markedly at the several age periods. Between 15 and 19 years our figures indicate a slight excess in the colored male suicide rate over the rate for white males, but this may be purely accidental and of no real significance. Beginning with the age period 20 to 24 years, the colored male suicide rate becomes increasingly more favorable in respect to the white male rate. Thus, while colored males showed a suicide mortality rate 82.2 per cent. of that recorded for white males at the age period 20 to 24 years, the ratio was only 12.5 per cent. at the age period 65 to 74 years. Among colored females also, with the exception of the age period 20 to 24 years, we observe with advancing age an increasingly more favorable suicide rate. The foregoing facts are shown in the table given below:

TABLE 70.

MORTALITY FROM SUICIDE (ALL FORMS).

Percentage, Colored of White Mortality at Specified Age Periods for Each Sex. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Percentage, Colored of White Mortality.	
	Males.	Females.
All ages—one and over.......	50.2	72.1
15 to 19..........	102.0	73.6
20 to 24..........	82.2	136.8
25 to 34..........	58.4	66.7
35 to 44..........	34.5	52.3
45 to 54..........	21.1	30.6
55 to 64..........	21.4	12.5
65 to 74..........	12.5	11.4
75 and over	—	—

Sex Ratio of Suicide Mortality.

We have shown that for white persons, the female suicide rate was less than the male suicide rate, the ratio being about one to three. White males show a higher rate of self-destruction at all age periods with the exception of the period of 15 to 19 years.

There is a distinctly higher suicide rate among white females in this age of early adolescence than among white males. This phenomenon is also in evidence in such population figures as we have been able to find. It is possible that the stress and strain of early adolescence is more disastrous to females than to males. We might expect, also, to find a higher index of mental disorders among female adolescents than among males of the same ages on the basis of these suicide data. It may be noted in this connection that there is a much higher incidence rate of serious cases of *dementia precox,* a form of dementia characteristic of adolescence and early adult life, among females than among males in populations generally. Thus, in New York State during 1916 there were in the care of the hospitals for mental diseases under the supervision of the New York State Hospital Commission, 8,903 male and 10,046 female *dementia precox* cases. At the ages in the population from which these patients were drawn, there is a considerable excess of males. This would make the disparity between the male and female *dementia precox* rates much greater than would be indicated by the foregoing comparison of the sex ratios of such patients under hospital care.

Beginning with the age period 20 to 24 years, the white male suicide rate shows a very marked excess over the white female rate. This excess increases with advancing age. Between 20 and 24 years the white male suicide rate is 207 per cent. of the white female rate, between 25 and 34 years, 251 per cent.; between 35 and 44 years, 394 per cent., increasing to a percentage of 759 at the age period 65 to 74 years.

TABLE 71.

MORTALITY FROM SUICIDE (ALL FORMS).

Percentage, Male of Female Mortality at Specified Age Periods for Each Color Class. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Percentage, Male of Female Mortality.	
	White.	Colored.
All ages—one and over.......	295.6	206.1
15 to 19	69.4	96.2
20 to 24..........	206.9	124.4
25 to 34..........	251.4	220.3
35 to 44..........	393.6	259.6
45 to 54..........	541.4	373.5
55 to 64..........	700.0	1200.0
65 to 74..........	759.0	833.3
75 and over	1029.8	—

Colored males also show a suicide death rate lower than that for colored females at the age period 15 to 19 years, although the advantage of the males in relation to the females among the colored is not as great as that observed among the white lives. Beginning with the age period 20 to 24 years colored males showed a suicide rate 124 per cent. of that recorded for colored females. There is much the same precipitate rise in the percentage of excess of male suicide mortality among colored persons as we found among white persons. The greatest difference is found in age period 55 to 64 when the rate for colored males is twelve times as high as for colored females. The foregoing observations are shown in tabular form on page 131.

Suicide Experience of Insured Wage Earners and Population of Expanding Registration Area of the United States Compared.

The suicide rates for white male insured wage earners are more favorable than the rates for males in the general population of the United States only for the ages under 25 years. Beginning with the age period 25 to 34 years we observe excesses in the suicide rate of white male wage earners—an excess of 5 per cent. for the period 25 to 34 years, of 20 per cent. for the period 35 to 44 years, of 17 per cent. for the period 45 to 54 and of 11 per cent. for the period 55 to 64 years. In other words, at the ages of early adolescence and early adult life white male wage earners show a more favorable suicide rate, but continuing through the main working period of life and up to the last age group registered in this table, the suicide rate of insured white males exceeds, and rises faster, than the rate for all males in the general population of the expanding Registration Area of the United States.

The suicide experience for insured white females is, however, more encouraging. Only between the ages 15 and 19 years and 25 and 34 years do we find an excess (very negligible) in the suicide rate of the insured group over females in the general population. For all other age periods, insured white females show a more favorable suicide rate than do females in the population of the expanding Registration Area of the United States. Moreover, between the ages 35 to 64 years, insured white females show a tendency to improve upon the already favorable ratio of their suicide rate to the rate for females in the general population. Between 35 and 44 years insured white females showed a rate 96.5 per cent. of that recorded for females in the general population; between 45 and 54 years, a rate of 88.8 per cent., and between 55 and 64 years, a rate 78.2 per cent. of that recorded for females in the general population. These observations are shown in the following table:

TABLE 72.

MORTALITY FROM SUICIDE (ALL FORMS).

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.
All ages—one and over....	20.1	24.6	81.7	6.8	7.9	86.1
1 to 14	.2	.6	33.3	.1	.5	20.0
15 to 19	5.0	5.6	89.3	7.2	7.1	101.4
20 to 24	18.0	18.2	98.9	8.7	10.7	81.3
25 to 34	27.9	26.7	104.5	11.1	11.0	100.9
35 to 44	42.9	35.8	119.8	10.9	11.3	96.5
45 to 54	60.1	51.4	116.9	11.1	12.5	88.8
55 to 64	72.8	65.8	110.6	10.4	13.3	78.2
65 to 74	79.7	61.6	129.4	10.5	11.6	90.5
75 and over.	86.5	61.5	140.7	8.4	9.8	85.7

Suicide According to Principal Means of Injury.

The above discussion reviewed the principal facts of the suicide experience in the aggregate. A more intimate view, however, is afforded by a brief consideration of this phenomenon of self-

TABLE 73.

MORTALITY FROM SUICIDE (ALL FORMS).

Number of Deaths, and Percentage of Deaths According to Specified Means of Injury. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Means of Injury.	Number of Deaths.	Percentage of Total.
SUICIDES—TOTAL	6,542	100.0
Suicide by		
Poison.................	2,352	36.0
Asphyxia...............	1,040	15.9
Hanging or strangulation.	761	11.6
Drowning	316	4.8
Firearms...............	1,519	23.2
Cutting or piercing instruments	346	5.3
Jumping from high places.	107	1.6
Crushing...............	33	.5
Other suicides	68	1.0

destruction according to the means of injury employed. In the preceding table we display the number of deaths reported according to the chief means of injury employed, and the percentage that each "means of injury" class constitutes of the total.

Poison was the chief means of suicide in the present experience. Of the total deaths from suicide, 36.0 per cent. were accomplished by this means. This ratio is, of course, not constant in all mortality experiences. For instance, in New York City, asphyxia is the principal mode of committing suicide for both males and females and in the Registration Area of the United States it would seem that firearms were the chief means of suicidal injury as regards males. Poisoning seems to be the mode most frequently chosen by females in the Registration Area, corresponding practically to the prevalence shown in the experience of the Industrial Department of this Company. Variation in the choice of means of suicidal injury depends, of course, upon numerous factors, such as legislative restriction upon the sale of poisons, firearms and other means of injury, the extent to which publicity is given to suicides in the newspapers of various localities, and other strictly local factors difficult to enumerate. We shall take up briefly the principal means of suicidal injury in this present experience.

*Suicide by Poison.**

There were 2,352 deaths from this cause concerned in the present investigation, in which either solid or liquid poisonous substances were employed. These deaths corresponded to a rate of 4.4 per 100,000 persons exposed. The age and sex characteristics of this cause of death are shown in Table 74 on page 135.

It will be seen that the maximum rate in the entire group for suicide by poison is that among white males in the age period 55 to 64 years. Among white females and colored males, the maximum figure is found in the age period 25 to 34 and among colored females even earlier, between 20 and 24 years.

The general trend of mortality from suicide by poison seems to be downward. This is indicated by the figures given in Table 75 on page 135.

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* Solid and liquid poisons only. Where poisonous gas is the means employed the death is classified under "Suicide by Asphyxia."

TABLE 74.

MORTALITY FROM SUICIDE BY POISON, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	4.4	6.0	3.4	2.9	3.0
1 to 14.....	†	†	.1	.1	—
15 to 19.....	3.3	1.7	5.0	1.3	3.8
20 to 24.....	6.2	6.7	5.9	3.0	8.5
25 to 34.....	7.7	10.7	6.3	6.2	4.9
35 to 44.....	7.5	14.1	4.5	4.8	3.1
45 to 54.....	7.3	15.0	4.0	3.3	1.0
55 to 64.....	8.1	17.6	3.7	1.8	.4
65 to 74.....	7.3	16.7	2.7	—	—
75 and over .	3.8	8.5	1.7	—	—

† Less than .05 per 100,000.

From a rate of 5.4 per 100,000 in 1911 the decline was fairly regular to a rate of 2.8 per 100,000 in 1916. We must remember, however, that suicide mortality is subject to considerable fluctuation with community conditions and that an opinion on the real trend of this phenomenon must be founded upon facts over a long

TABLE 75.

MORTALITY FROM SUICIDE BY POISON, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916	4.4	6.0	3.4	2.9	3.0
1916....	2.8	3.5	2.4	2.4	1.8
1915....	3.8	4.9	3.4	.9	2.8
1914....	4.8	6.8	3.4	3.7	3.7
1913....	5.1	7.1	3.7	4.6	3.1
1912....	4.8	6.6	3.7	4.1	2.4
1911....	5.4	7.7	4.1	1.9	4.1

period of time and only after the fluctuations characteristic of suicide are in full view.

Suicide by Asphyxia.

The experience for this cause of death among white males and females according to age periods is shown in the following table. No substantial facts for colored persons are available.

TABLE 76.

MORTALITY FROM SUICIDE BY ASPHYXIA, CLASSIFIED BY SEX FOR WHITE LIVES AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons in Total Experience.	White.	
		Males.	Females.
All ages—one and over....	1.9	3.0	1.5
1 to 24........	.3	.3	.2
25 to 34........	2.2	3.4	2.1
35 to 44........	3.9	6.3	3.6
45 to 54........	5.3	10.4	3.6
55 to 64........	6.2	13.3	2.8
65 to 74........	6.7	14.4	3.0
75 and over.....	3.4	5.7	2.5

The rates represented in the foregoing table were based upon 1,040 deaths from suicide by asphyxia. The rate for males from this cause is, at all ages combined, twice as high as that for white females. There is a constant increase in the rate with age for white males throughout the significant age groups but no very material variation for white females. The general trend of the rate for suicide by asphyxia during the six years under observation is shown in the table on page 137.

There is a practically constant death rate for this cause. Such variations as do occur are of no particular moment. If anything, there seems to be a slight increase in the rate for white females. In the expanding Registration Area of the United States, also, there has been observed in recent years a slight increase in the recorded death rate from suicide by asphyxia, but this may be almost entirely due to an increase in the precision of reporting on the part of coroners, physicians and others entrusted with the completing of death certificates.

TABLE 77.

Mortality from Suicide by Asphyxia, Classified by Sex for White Lives.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons in Total Experience.	White.	
		Males.	Females.
1911 to 1916	1.9	3.0	1.5
1916.............	1.9	2.5	1.8
1915.............	2.3	3.4	1.9
1914.............	1.9	3.1	1.2
1913.............	2.1	3.5	1.5
1912.............	1.7	2.4	1.5
1911.............	1.7	2.8	1.1

Suicide by Hanging or Strangulation.

Only 761 deaths from this cause were recorded. This number does not justify any detailed analysis according to age classes. It will be sufficient to remark that the death rate for this cause was practically the same among white males as the death rate from suicide by asphyxia. For white females and for colored persons the data are of no significance. The total number of deaths registered was 761; of these 626 were those of white males.

Suicide by Drowning.

There were only 316 deaths from this form of suicide. White males showed the highest rate; white females had a death rate about half that of white males.

Suicide by Firearms.

The use of firearms was next in importance to poison among the cases of suicide represented in this mortality experience. We recorded in all 1,519 deaths at a rate of 2.8 per 100,000 exposed. The mortality rate varied quite sharply according to sex, there being an almost negligible rate among females of both color or race classes. Our facts for color, sex and age are given in the following table:

TABLE 78.

MORTALITY FROM SUICIDE BY FIREARMS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	2.8	5.7	.6	4.2	.8
1 to 14.	†	.1	—	.1	.1
15 to 19.	1.3	1.9	.8	1.9	.6
20 to 24.	4.1	7.3	1.5	7.9	1.1
25 to 34.	3.9	8.1	1.0	7.2	1.3
35 to 44.	4.7	11.7	.9	5.6	1.0
45 to 54.	6.1	16.5	.7	5.2	.8
55 to 64.	6.6	17.8	.4	4.8	.4
65 to 74.	6.0	16.5	.3	3.3	—
75 and over. .	7.2	21.3	—	—	—

† Less than .05 per 100,000.

The chief fact of importance in this table is the practically stationary rate between 45 and 75 years of age. The trend of the mortality from this cause is displayed in the following table:

TABLE 79.

MORTALITY FROM SUICIDE BY FIREARMS, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916.	2.8	5.7	.6	4.2	.8
1916.	2.5	4.8	.6	4.2	.6
1915.	2.8	5.5	.6	4.3	.9
1914.	2.7	5.4	.7	3.7	.8
1913.	3.1	6.5	.6	4.2	.5
1912.	2.9	6.1	.4	5.0	.5
1911.	3.0	5.9	.5	4.1	1.3

The figures at hand relate to so few calendar years that no final conclusion can be drawn on the general trend of suicide by firearms.

We can say at a venture that a slight decrease was observed. The underlying causes of mortality from suicide by firearms are entirely too complex to make it possible for us to speculate in any great detail upon the data shown in the foregoing table.

HOMICIDE.*

The facts on homicide among this group of insured wage earners form an important contribution to the statistics on the crime of homicide in the United States. In fact, there are not available in discussions of the homicide problem any such detailed, modern data according to age classes of the two main race groups in the population as are to be found in this present display. In this investigation there were recorded 3,753 homicides and these deaths represent a rate of 7.0 per 100,000 persons exposed. The following table gives a statement of the number and percentage of homicide deaths according to the several means of injury employed:

TABLE 80.

MORTALITY FROM HOMICIDE (ALL FORMS).*

Number of Deaths, and Percentage of Deaths, According to Specified Means of Injury. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Means of Injury.	Number of Deaths.	Percentage of Total.
HOMICIDES—TOTAL	3753	100.0
Firearms	2435	64.9
Cutting or piercing instruments	616	16.4
Other homicides	702	18.7

Of these homicides, 64.9 per cent. were accomplished through the use of firearms. This proportion is slightly in excess of that for the general population of the expanding Registration Area (61.8). Homicide by means of cutting or piercing instruments was recorded in the present investigation in 16.4 per cent. of all homicides. In the general population of the Registration Area only 14.2 per cent. were accomplished through this means.

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* Under "Homicide" are classified only those cases in which the fact of homicide or of attempt at homicide is clearly shown. By careful "editing" of our data relating to causes of death many cases originally reported under such terms as "gunshot wound," "cut," "poisoning," and others have been classed as homicides instead of being placed under the "accidental or unqualified" group.

The homicide death rate in this insurance experience was nearly 7½ times as great for colored males as for the entire group of insured wage earners. This rate (52.2 per 100,000) was almost ten times that of white males (5.4 per 100,000). Among colored females there was registered a death rate for homicide of 14.1 per 100,000 exposed. This rate is nearly three times that recorded for white males and over seven times the rate for white females. In the following table and in Chart XIV, page 141, we give a comparison of the homicide death rates in this insurance experience according to color, sex and age classes:

TABLE 81.

MORTALITY FROM HOMICIDE (ALL FORMS), CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

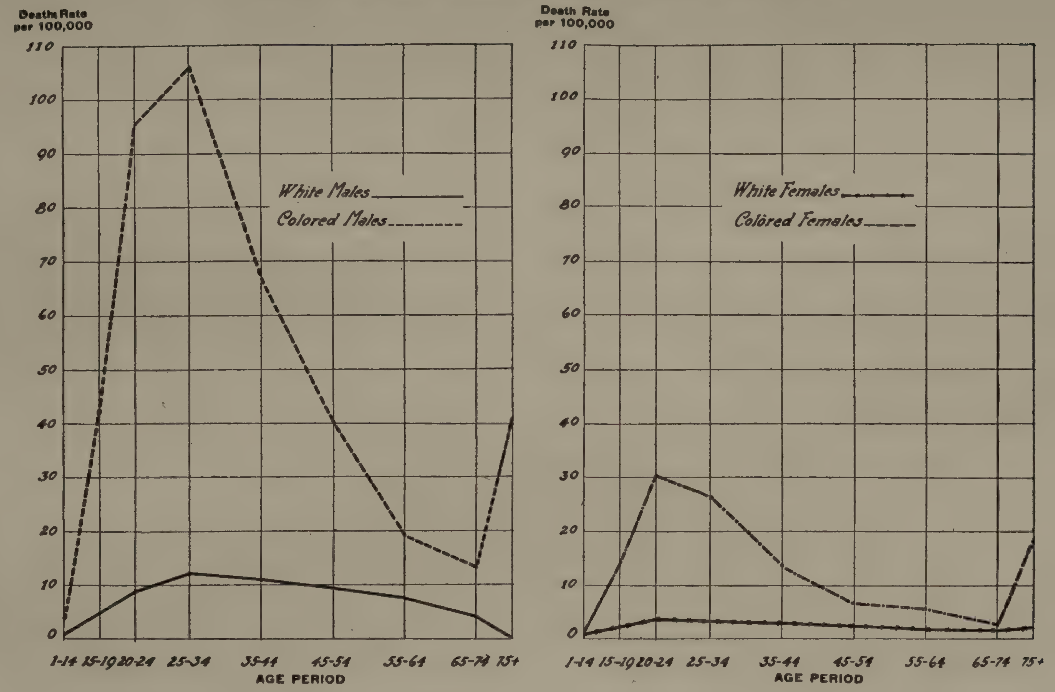
Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	7.0	5.4	1.9	52.2	14.1
1 to 14.....	.7	.6	.6	3.1	1.1
15 to 19.....	5.8	4.4	2.1	40.6	14.1
20 to 24.....	12.5	8.5	3.6	95.6	30.1
25 to 34.....	16.0	11.8	3.3	106.0	26.6
35 to 44.....	11.4	10.5	2.8	66.6	13.4
45 to 54.....	7.3	9.4	1.9	40.1	6.8
55 to 64.....	4.6	7.3	1.3	19.2	5.7
65 to 74.....	2.8	4.1	1.1	13.4	2.3
75 and over .	3.4	—	1.7	41.2	18.1

The age period of maximum incidence for males in both color classes was the same—25 to 34 years. For white and colored females the maximum rate occurred at an earlier period, 20 to 24 years of age. Among colored males this maximum rate was 106 per 100,000 exposed. Homicide among colored males was one of the chief causes of death, ranking next to pneumonia in order of numerical importance at this age period in life. It will be noted,

Chart XIV.—MORTALITY FROM HOMICIDE—ALL FORMS

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



however, that the age period 20 to 24 years had only a slightly lower homicide rate, 95.6 per 100,000 exposed.

Homicide assumes alarming proportions as a cause of death among the colored population of the United States. No convenient or all-inclusive explanation of this phenomenon among colored persons can be made in this present discussion. The homicide problem is entirely too grave and grows out of so many other complex social situations that we cannot, at the present time, do more than to indicate the necessity for a further and qualified inquiry into the problem.

The ratio of the homicide rates for white and colored persons, according to sex, may be pointed out, however, in passing. The following table gives a convenient view of the ratios of white and colored mortality at the several age periods in each sex:

TABLE 82.

Mortality from Homicide (All Forms).

Percentage, Colored of White Mortality at Specified Age Periods for Each Sex. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Percentage, Colored of White Mortality.	
	Males.	Females.
All ages—one and over.......	966.7	742.1
15 to 19..........	922.7	671.4
20 to 24..........	1124.7	836.1
25 to 34..........	898.3	806.1
35 to 44..........	634.3	478.6
45 to 54..........	426.6	357.9
55 to 64..........	263.0	438.5
65 to 74..........	326.8	209.1
75 and over	—†	1064.7

† No deaths of white males from homicide in this age period.

It will be seen that for the entire experience the homicide rate for colored males is practically ten times that of white males. At the age period 20 to 24 years the colored male homicide rate is more than eleven times that of the white male rate. There is a tendency toward decrease in this ratio with advancing age. At all ages, 1 and over, in this experience, colored females show a homicide rate nearly 7½ times that of white females. At the age period 20 to 24 years colored female homicide mortality is more than 8¼ times the rate for white females. Between 25 and 34 years, homicide among colored females is still more than eight times as prevalent as among white females.

We may inquire briefly also into the sex ratio of homicide mortality according to age period for each of the color classes. The facts available are shown in the following table:

TABLE 83.

MORTALITY FROM HOMICIDE (ALL FORMS).

Percentage, Male of Female Mortality at Specified Age Periods for Each Color Class. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Percentage, Male of Female Mortality.	
	White.	Colored.
All ages—one and over.......	284.2	370.2
15 to 19..........	209.5	287.9
20 to 24..........	236.1	317.6
25 to 34..........	357.6	398.5
35 to 44..........	375.0	497.0
45 to 54..........	494.7	589.7
55 to 64..........	561.5	336.8
65 to 74..........	372.7	582.6
75 and over.. ...	—†	227.6

† No deaths of white males from homicide in this age period.

Males among white persons show a homicide death rate nearly three times that of females. For the colored race, males have a homicide death rate nearly 3¾ times that of females. The excess of the homicide rate for males over the rate for females increases with age up to the period 55 to 64 years among white persons and up to the period 45 to 54 years among colored persons.

Homicide Rate Among Insured Wage Earners and Among Population of the Expanding Registration Area of the United States Compared.

We offer on page 144 a comparison of the homicide death rates among white persons in the insurance experience and among all persons in the Registration Area experience.

These two groups are in many respects comparable. It must be remembered, however, that the statistics for the expanding Registration Area of the United States are affected by a small proportion of colored persons, about 5 per cent. In view, however, of the extraordinarily high homicide rate among this latter group of the population, the figures for the total population as to homicide are, undoubtedly, a little higher than they would be had it been possible to exclude this statistical group. Thus, in making this present comparison, we must bear in mind that about 5 per cent. of the population material is affected by a homicide death rate between seven and ten times as high as that of white persons. This one fact may be sufficient in itself to account for the exceptionally favorable homicide figures among insured white males and females shown in the following table:

TABLE 84.

Mortality from Homicide (All Forms).

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.
All ages—one and over....	5.4	10.4	51.9	1.9	2.7	70.4
1 to 14.....	.6	.9	66.7	.6	.7	85.7
15 to 19.....	4.4	6.1	72.1	2.1	3.0	70.0
20 to 24.....	8.5	16.9	50.3	3.6	5.0	72.0
25 to 34.....	11.8	19.3	61.1	3.3	4.7	70.2
35 to 44.....	10.5	16.6	63.3	2.8	3.5	80.0
45 to 54.....	9.4	11.7	80.3	1.9	2.1	90.5
55 to 64.....	7.3	8.1	90.1	1.3	1.5	86.7
65 to 74.....	4.1	5.7	71.9	1.1	1.2	91.7
75 and over..	—	3.7	—	1.7	1.6	106.3

For all ages one and over the homicide rate for insured white males was only 52 per cent. of that among all males in the expanding Registration Area of the United States. Among insured white females the homicide rate was only 70 per cent. of the rate prevailing in the Registration Area group of females. Beginning with the age period 25 to 34 years, however, there is, with unimportant exceptions, an increasing tendency toward equality in the homicide rates of the two experiences. At the age period 55 to 64 years, insured white males have a homicide rate only 10 per cent. more favorable than that of males in the population experience.

Trend of the Death Rate for Homicide.

In the experience for insured wage earners we observe a fluctuating rate from this cause, with no distinct upward or downward tendency for any of the color or sex classes, with the possible exception of colored males for whom there was perhaps a tendency toward increase. The 1916 death rate for homicide, compared with the 1911 rate, showed a slight decrease for white males, a constant rate for white females, an increase of practically eight points per 100,000 for colored males and a decrease for colored females. It will be recalled that the suicide rate during 1916 showed a tendency to reflect the conditions of unprecedented prosperity which prevailed throughout the sections of the country where the Company does business among wage earners. This condition of generally better economic status for the industrial population of the United States apparently did not affect the homicide death rate, however, probably because there is no very close connection between the homicidal impulse and material well-being. The crime of homicide is precipitated, perhaps, in persons afflicted with various types of mental and nervous defects and diseases, by other than economic stresses and circumstances. In the following table we give a statement of the trend of the homicide death rate during the six years of this present investigation:

TABLE 85.

MORTALITY FROM HOMICIDE (ALL FORMS), CLASSIFIED BY COLOR AND BY SEX. *Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	7.0	5.4	1.9	52.2	14.1
1916.......	6.9	5.4	2.0	54.0	14.3
1915.......	6.9	5.5	2.0	49.9	15.8
1914.......	7.0	5.5	1.9	54.0	12.6
1913.......	7.2	4.8	2.1	57.8	13.1
1912.......	6.7	5.2	1.6	50.4	12.8
1911.......	7.2	5.9	2.0	46.2	15.9

In the experience of the general population of the Registration Area we observe, likewise, a practically stationary death rate from the crime of homicide. It must be remembered, however, that between 1911 and 1915, the period for which population data are available at the present writing, a number of areas containing a large number of colored persons were added to the registration record and that this fact in itself had a tendency to slacken a slight decrease in homicide, if any such really existed.

CHAPTER IX.

CANCER (ALL FORMS).

Although there have appeared many and important contributions to the mortality statistics of cancer in recent years, none of these has presented the facts in such detail as to show the incidence of this condition in the several age periods of life with the further distinction of sex and of color or race of the population. This is the merit of the data presented herewith. They are to our knowledge original in the cancer literature and should well serve the nation-wide movement for the control of the disease. Many discussions which have centered around the cancer problem in recent years, such as the supposed increase of mortality and other questions, can be settled only as we know for a period of years the detailed facts of mortality for a relatively constant population. The present experience meets this requirement admirably and has the further merit that it reflects conditions in a large industrial group among whom, as will be shown later, cancer takes a heavy toll.

Special efforts were made in the course of the present inquiry to have the basic data as reliable as possible. Physicians certifying the causes of death often returned statements of cancer unqualified as to the organ or part affected. In such instances, letters of inquiry were written and the physicians were asked to specify the type of tumor or cancer and the organs or parts first affected by the growth. The effect of this correspondence has been to increase the precision of the statistical results for cancer. While the data were not refined to the same point of completeness as characterized the recent investigation of the United States Bureau of the Census, the effort was made to cover fully the various parts and organs specified in the International List of Causes of Death.

During the six year period of this investigation, 37,666 cancer deaths were recorded at a rate of 70.0 per 100,000 persons exposed. Cancer was the sixth cause in order of numerical importance in this study. These deaths constituted 5.9 per cent. of all the deaths in the experience. In the following table, the facts are arranged so as to show the number of deaths from cancer of the various organs or parts, and a few derivative ratios, including the death rates per 100,000 persons exposed, are given:

TABLE 86.

MORTALITY FROM CANCER, SPECIFIED ACCORDING TO ORGANS OR PARTS AFFECTED.

Deaths, and Death Rates per 100,000 Persons Exposed.
All Color and Sex Groups Combined.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Organ or Part Affected.	All Color and Sex Groups in Mortality Experience.			
	No. of Deaths.	Per Cent. of Total—All Causes.	Per Cent. of Total Cancer Deaths.	Death Rate per 100,000 Exposed.
CANCER—ALL FORMS	37,666	5.9	100.0	70.0
Cancer of the:				
Buccal cavity	1,353	.2	3.6	2.5
Stomach, liver	14,153	2.2	37.6	26.3
Peritoneum, intestines, rectum	4,482	.7	11.9	8.3
Female genital organs	7,882	1.2	20.9	14.7
Breast	3,579	.6	9.5	6.7
Skin	938	.2	2.5	1.7
Other organs, or of organs not specified	5,279	.8	14.0	9.8

Cancer and other malignant tumors of the stomach and liver constituted the largest single group of malignant growths, with 37.6 per cent. of all cancers, at a rate of 26.3 per 100,000 persons exposed. Cancer of the female genital organs was next in importance, with 7,882 deaths, constituting 20.9 per cent. of all cancer deaths with a rate of 14.7 per one hundred thousand persons of both sexes. Cancers affecting the peritoneum, intestines and rectum followed with 4,482 deaths, in all 11.9 per cent. of all cancers at a rate of 8.3 per 100,000. These death rates, however, vary considerably with age and sex. In the following table, we give a comparison of the general cancer mortality experience for each of the main color and sex classes, showing separately the facts for cancer of the various organs or parts. The age data will be presented later.

TABLE 87.

MORTALITY FROM CANCER, CLASSIFIED ACCORDING TO ORGANS OR PARTS.

Percentage of Deaths, all Causes, and Death Rates per 100,000 Persons Exposed. By Color and by Sex. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Organ or Part Affected.	Total Experience.		White Males.		White Females.		Colored Males.		Colored Females.	
	P. C. of Deaths—All Causes.	Death Rate per 100,000.	P. C. of Deaths—All Causes.	Death Rate per 100,000.	P. C. of Deaths—All Causes.	Death Rate per 100,000.	P. C. of Deaths—All Causes.	Death Rate per 100,000.	P. C. of Deaths—All Causes.	Death Rate per 100,000.
CANCER—ALL FORMS..	5.9	70.0	4.3	50.4	8.5	88.4	1.8	31.0	5.2	87.8
Cancer of the:										
Buccal cavity.....	.2	2.5	.4	4.6	.1	.9	.1	2.5	.1	1.3
Stomach, liver....	2.2	26.3	2.1	24.8	2.9	29.8	.9	16.2	1.1	18.5
Peritoneum, intestines, rectum...	.7	8.3	.6	6.6	1.0	10.5	.2	3.4	.4	7.2
Female genital organs.........	1.2	14.7	—	—	2.4	25.3	—	—	2.2	37.9
Breast...........	.6	6.7	*	.1	1.1	11.7	*	.3	.9	14.7
Skin.............	.2	1.7	.2	2.2	.2	1.6	*	.8	*	.7
Other organs or of organs not specified...........	.8	9.8	1.0	12.0	.8	8.6	.4	7.9	.4	7.3

* Less than .05 per cent.

We see from this table that for all ages one and over combined, white persons show higher cancer death rates than colored persons, although the white female rate is only slightly higher than that for colored females. Various differences between the cancer death rates of the color and sex classes occur for this disease as it affects various organs or parts. White males, for instance, show uniformly higher cancer death rates for each of the organs or parts than are in evidence for colored males. White females show significantly lower cancer death rates for this disease only as it affects the female genital organs and the breast. Cancer of the uterus and of the other genital organs shows a rate of 25.3 per one hundred thousand white females exposed and a rate of 37.9 for colored females. Cancer of the breast, in this present mortality experience, was recorded at a rate of 11.7 per one hundred thousand white females, and at a rate of 14.7 per one hundred thousand colored females. For the other chief organs or parts, cancer mortality of white females is greater than among colored females.

In a later part of this present section, we shall bring out in greater detail the age characteristics of this cancer mortality experience for the several color and sex classes, and with distinction of the several organs and parts. We quote below our general cancer death rates per one hundred thousand persons exposed in each of the color and sex classes for the various age periods. Chart XV shows the course of the cancer death rates in the experience according to age, for each of the color and sex classes.

TABLE 88.

MORTALITY FROM CANCER, ALL FORMS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	70.0	50.4	88.4	31.0	87.8
1 to 4	3.7	3.7	4.0	2.6	2.5
5 to 9	1.4	1.5	1.6	1.0	1.0
10 to 14	1.3	1.5	1.4	.3	.6
15 to 19	2.8	2.8	2.8	2.2	2.9
20 to 24	4.1	4.6	3.7	1.3	6.3
25 to 34	15.7	8.8	18.5	7.5	33.2
35 to 44	76.2	38.3	99.3	30.0	118.1
45 to 54	198.6	147.0	238.6	84.7	238.7
55 to 64	382.5	356.2	423.2	183.1	359.1
65 to 74	617.2	625.3	665.1	230.5	433.4
75 and over	818.2	822.8	863.9	384.1	580.7

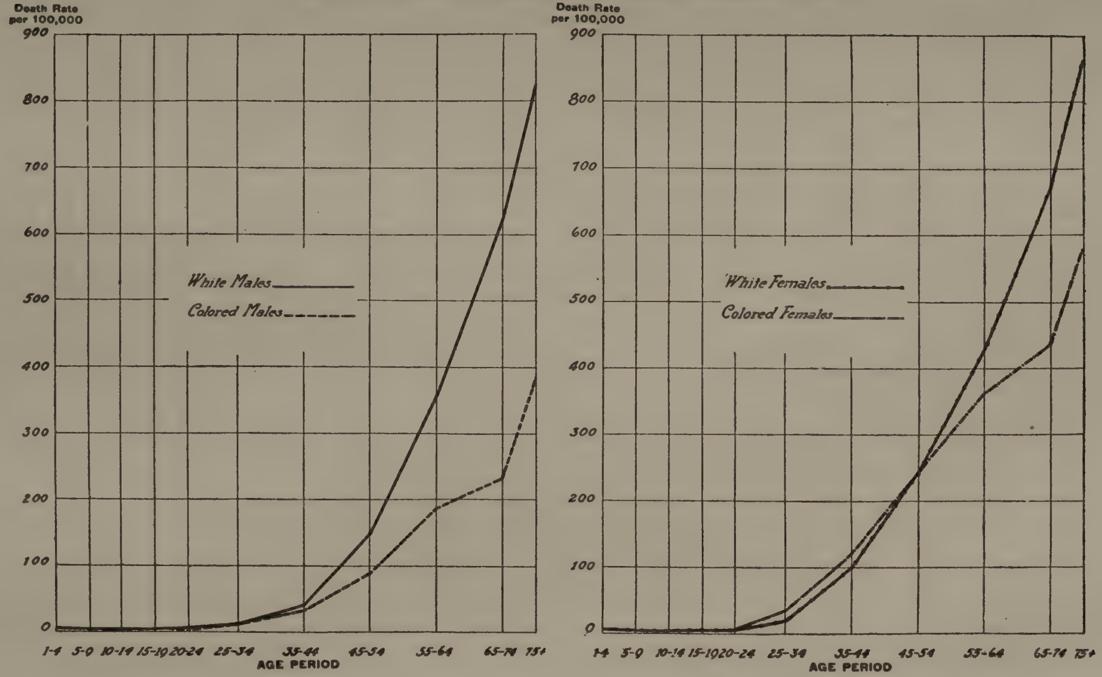
In the introduction to this present section, we indicated that, in general, cancer mortality was lower among colored persons than among white persons, and that colored males showed relatively more favorable rates than colored females. Without any emphasis at this present time upon the organs or parts affected by cancer, we may now consider the general age characteristics of this disease.

A fairly significant rate is registered for the ages one to four years in the total experience. The cancer rate declines thereafter to its minimum at ten to fourteen years of age and then rises, at first gradually, but afterward in heavy increments up to the latest age period in this series. The same general characteristics of the

Chart XV.—MORTALITY FROM CANCER—ALL FORMS

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



age course of cancer mortality are observed for white males as for white females, with the exception that the upward slope of the curve for white females is very much sharper for the ages beyond 25 years. The cancer death rates for colored persons under 25 years of age are, for the most part, very low, and fluctuate somewhat irregularly. Beginning with the age period 25 to 34 years, however, there is a constantly increasing rate, up to the highest age period recorded in this series.

Color Ratio of Cancer Mortality.

White males show emphatically higher cancer death rates at every age period than were recorded for colored males. Comparisons between the cancer death rates of white and colored females are practicable beginning with the age period 25 to 34 years. Between 25 and 44 years, the cancer death rate of white females was decidedly lower than the rate for colored females. Between 45 and 54 years, the rates were practically the same. Beginning with the age period 55 to 64 years and continuing to the highest age period in the table, we observe that the cancer death rates of white females were much higher than the rates for colored females. These differences in the total cancer death rates of white and colored females are to be accounted for, as will be shown later, by the higher mortality from cancer of the generative organs among colored females.

Sex Ratio of Cancer Mortality.

We have seen that among white lives the cancer death rate of females was practically one and two-thirds that of males. Cancer mortality of white males exceeds that of white females only for cancer of the buccal cavity, where the rates are 4.6 and .9 per 100,000 persons exposed, respectively; for cancer of the skin, where the rates are 2.2 and 1.6 respectively, and for the group of "cancers of other organs or of organs not specified." For cancer of the stomach and liver and of the peritoneum, intestines and rectum, the death rates of white females were decidedly in excess of those for white males. In addition, white females showed a high death rate for cancer of the female genital organs (25.3 per one hundred thousand) and for cancer of the breast (11.7 per one hundred thousand). Practically the same general remarks apply to the comparative cancer death rates of colored males and colored females when compared with respect to the several organs affected by malignant growths.

There are no important differences in the cancer mortality of the two sexes among white lives under 25 years of age. Beginning with the age period 25 to 34 years, however, the cancer death rates of white females exceed those of white males substantially, up to and including the age period 55 to 64 years. Thus at the age period 35 to 44 years the rate for white males was only 38.6 per cent. of that for white females. After age 65, the disproportion between the rates for the two sexes among white lives is not so great.

The excess of the cancer death rate of colored females over the rate for colored males is much greater than was observed, age period by age period, for white lives. Thus between 25 and 45, the rate for colored males was only about one-fourth as great as for colored females. In the following table, we give, first, a statement of the ratio of cancer mortality between the two races and, second, the sex ratio according to age period:

TABLE 89.

MORTALITY FROM CANCER (ALL FORMS).

Percentages: Colored of White Mortality by Sex; Male of Female Mortality by Color; Classified by Age Period. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Per Cent. Colored of White Mortality.		Per Cent. Male of Female Mortality.	
	Males.	Females.	White.	Colored.
ALL AGES—ONE AND OVER	61.5	99.3	57.0	35.3
1 to 4	70.3	62.5	92.5	*
5 to 9	66.7	62.5	93.8	*
10 to 14	20.0	42.9	107.1	*
15 to 19	78.6	103.6	100.0	*
20 to 24	28.3	170.3	124.3	*
AGES 25 AND OVER	43.0	80.1	70.5	37.9
25 to 34	85.2	179.5	47.6	22.6
35 to 44	78.3	118.9	38.6	25.4
45 to 54	57.6	100.0	61.6	35.5
55 to 64	51.4	84.9	84.2	51.0
65 to 74	36.9	65.2	94.2	53.2
75 and over	46.7	67.2	95.2	66.1

* Insufficient data.

Comparison of Cancer Death Rates among Insured Wage Earners with Rates for Population of Expanding Registration Area of the United States.

For both males and females, at all ages one and over combined, the cancer death rates of white lives in the insurance experience are substantially lower than the rates recorded in the Registration Area of the United States. This favorable ratio for the cancer mortality experience of insured wage earners does not hold for all of the age periods. Thus, the cancer death rate among white male wage earners is, in general, lower than the rate for males in the general population only at ages under 35 years. Among white insured females, the cancer death rate is lower than the rate among females in the general population only between 20 and 35 years of age.

The cancer death rate among both white males and white females of the insurance experience is higher than the rate for males and females in the Registration Area at every age period beyond 35 years of age, where cancer is of the most importance as a cause of death. It should be remarked also that male wage earners show much greater percentages of excess in cancer mortality than do females in wage earners' families. The following table sets forth these comparative facts of cancer mortality:

TABLE 90.

MORTALITY FROM CANCER (ALL FORMS).

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over.....	50.4	62.2	81.0	88.4	97.9	90.3
1 to 4.....	3.7	3.6	102.8	4.0	3.1	129.0
5 to 9.....	1.5	2.0	75.0	1.6	1.4	114.3
10 to 14....	1.5	1.7	88.2	1.4	1.4	100.0
15 to 19....	2.8	2.9	96.6	2.8	2.6	107.7
20 to 24....	4.6	4.4	104.5	3.7	4.6	80.4
25 to 34....	8.8	9.3	94.6	18.5	20.8	88.9
35 to 44....	38.3	31.9	120.1	99.3	89.0	111.6
45 to 54....	147.0	109.8	133.9	238.6	227.0	105.1
55 to 64....	356.2	280.3	127.1	423.2	406.9	104.0
65 to 74....	625.3	503.4	124.2	665.1	607.0	109.6
75 and over	822.8	710.2	115.9	863.9	828.2	104.3

Relation of Cancer to Economic Condition or Social Status.

At this point in the discussion, brief reference may be made to the possible relation between the incidence of cancer mortality and economic status, as indicated in a paper recently published on this subject.* The following table shows the main facts of an investigation based upon the comparative mortality experience of the Ordinary, Intermediate and Industrial Departments of the Metropolitan Life Insurance Company during the three years 1914, 1915, and 1916. White lives only were included in this investigation. The Ordinary Department policyholders are drawn from higher economic strata of the population than are the "Intermediate" group. The Industrial policyholders form the third class or group in order of material circumstance. In order to eliminate the slight effect of medical selection in the Ordinary and Intermediate groups with respect to cancer, we considered only the mortality in these classes on business in force at least five years.

TABLE 91.

CANCER CLAIM RATES PER HUNDRED THOUSAND MEAN IN FORCE.

Ordinary and Intermediate Departments, First Five Years of Issue Excluded Compared with Industrial Department, All Years of Issue Combined. Composite Mortality Experience 1914, 1915, and 1916. White Lives. By Sex and by Age Period.

Sex and Age Period.	Ordinary Department.	Intermediate Branch.	Industrial Department.
MALES:			
Ages 25 and over	83.5	70.3	140.0
25 to 34	12.0	8.7	9.7
35 to 44	33.4	41.8	37.5
45 to 54	104.3	107.6	154.1
55 to 64	276.5	295.1	368.0
65 and over	662.5	645.3	679.2
FEMALES:			
Ages 25 and over	141.6	115.1	197.7
25 to 34	31.4	25.4	17.8
35 to 44	71.6	87.8	98.9
45 to 54	213.5	206.7	235.8
55 to 64	353.6	422.1	429.6
65 and over	313.1	1,009.8	707.5

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* Knight, Augustus S., and Dublin, Louis I., "The Relation of Cancer to Economic Condition." Read before the ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA, Worcester, Mass., October 17, 1917. Reprinted by Metropolitan Life Insurance Company, New York, 1917.

In this table, *claim rates* per one hundred thousand mean in-force for the several departments are compared. Actual experience demonstrates that very little error is involved in a comparison of mortality rates based upon the number of claims reported and the mean number of policies in-force if such data are related strictly to age periods. The comparison is valid therefore as above given. Because of the heavy representation of policyholders at the ages under 45 years, with a small number of deaths, leading to aberrant cancer death rates for these ages, the Intermediate rates for both males and females at all ages are apparently the lowest. At the ages beyond 45 years, where cancer mortality is numerically significant, the Industrial group showed the highest rate, the Ordinary the least and the Intermediate a rate between the other two. As a result of an extended consideration of the data developed in this inquiry into the possible relation of cancer and economic condition, it was concluded that:

1. The current medical opinion that there is strong association between low economic status and a low cancer death rate is in all probability unfounded.
2. The cancer mortality rate at the ages where the cancer rate is significant, decreases as we go up in the economic scale.
3. This is shown to be true for each sex where sufficient data are available.
4. This conclusion is not conditioned by the effect of varying amounts of medical selection in the three groups considered.

Trend of the Cancer Death Rate.

Medical literature of the past few years contains much controversy on the question whether mortality from cancer is actually increasing or not. One school of research holds "that the mortality from cancer is increasing at a more or less alarming rate throughout the entire civilized world and that this increase implies most serious consequences, present and future, to the populations concerned."* Another group of statisticians holds that "the reported mortality from cancer is increasing in almost every part of the world, but the real mortality, if increasing at all, is certainly not increasing with equal rapidity. . . . The cumulative evidence that improvements in diagnosis and changes in age composition explain away more than half and perhaps all of the apparent increase in cancer mortality rebuts the presumption raised by the figures and makes it probable, though far from certain, that cancer mortality is not increasing."†

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* Hoffman, Frederick L., "The Mortality from Cancer Throughout the World," p. 218. Prudential Press, Newark, New Jersey, 1915.

It is not the purpose of this section to take sides in the controversy. It is desired to offer the mortality records of the present investigation only as a contribution to the available supply of trustworthy data on the trend of cancer mortality. The following table shows the rates per 100,000 persons exposed in each of the color and sex classes within the scope of this inquiry for the years 1911 to 1916:

TABLE 92.

MORTALITY FROM CANCER, ALL FORMS, CLASSIFIED BY COLOR AND BY SEX. *Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	70.0	50.4	88.4	31.0	87.8
1916.......	70.3	51.8	87.2	36.5	86.1
1915.......	70.9	50.7	89.8	29.0	90.4
1914.......	69.8	50.7	87.9	28.0	88.3
1913.......	70.5	51.4	87.5	32.4	93.6
1912.......	70.3	47.8	91.7	30.7	86.3
1911.......	68.0	49.6	86.5	28.9	81.3

Cancer death rates in this present experience, covering six calendar years, and relating in all to fifty million years of life exposed to risk, show no decisive upward or downward tendency for all age classes combined. This is true for each color and sex group, but more decisively for the group of insured white females for whom the highest rates are recorded. The rates, by color and by sex, for the year 1911 are, to be sure, slightly lower than the figures for the entire six year period; this condition may be accidental and without significance. Considering all ages combined, therefore, there is no evidence presented in these figures from which an increasing mortality may be predicated with any certainty.

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† Willcox, Walter F., "On the Alleged Increase of Cancer," *Quarterly Publications* of the American Statistical Association, Sept., 1917, p. 756.

It would be more significant perhaps in this discussion to consider the trend of the cancer death rate during the six year period in a definite age period, especially one in which the cancer death rate is usually high. For this purpose we have chosen the age period 55 to 64 years. The following table shows for each one of the color and sex groups, the death rates from cancer (all forms) during the six year period:

TABLE 93.

MORTALITY FROM CANCER (ALL FORMS) AGES 55 TO 64 YEARS, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1916.......	386.4	358.0	427.4	218.3	339.9
1915.......	380.8	336.0	427.8	175.7	394.3
1914.......	390.9	385.0	423.3	167.7	351.7
1913.......	384.1	370.3	414.6	195.2	368.3
1912.......	381.9	334.1	443.2	176.4	325.4
1911.......	368.7	353.3	400.2	158.0	373.7

This table shows very much the same trend situation in the age period 55 to 64 years as we found for all ages combined. The year 1911 was again a year of comparatively low cancer mortality. As the figures are compared for the individual years we find some variation with no clearly defined tendency toward increase or decrease. Our data, therefore, need not serve to confirm either one of the two opposing opinions and, in fact, point out the necessity for reserve and caution in predicating any decisive opinion with regard to the real trend of cancer mortality during recent years. A longer period of time will be required to collect authentic figures upon which a definite judgment can be based. Considerable analysis of cancer data according to age, sex, color and organ or part affected will be necessary before any final conclusions can be drawn as to the amount of increase, if any, in recent years. Another view of our data with respect to this question of cancer mortality increase is presented in the following table:

TABLE 94.

MORTALITY FROM CANCER (ALL FORMS).

Percentage, Death Rate per 100,000 Persons Exposed in 1915–1916 of Death Rate in 1911–1912. Classified by Color, Sex and by Significant Age Periods.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
Ages 25 and over..	101.0	105.2	98.3	105.1	100.7
25 to 34.....	98.1	121.0	94.1	95.5	95.0
35 to 44.....	100.1	104.3	96.9	142.6	98.2
45 to 54.....	99.1	109.7	97.0	67.7	93.1
55 to 64.....	102.2	101.1	101.2	118.0	105.2
65 to 74.....	107.0	115.9	101.9	117.2	107.0
75 and over..	101.0	104.1	104.4	110.7	48.6

We have eliminated in this table any superfluous references to ages under 25 years and in order to get at the heart of the matter have presented only the percentage which the cancer death rate in two years combined, 1915–1916, was of the death rate in two prior years, 1911–1912, at each significant age period, for each color and sex class.

Considering all persons in this mortality experience at ages 25 and over, there was an increase of only 1.0 per cent. in the cancer death rate between the two periods compared. This figure is a composite of a variously weighted increase of 5.2 per cent. for white males, a decrease of 1.7 per cent. for white females, an increase of 5.1 per cent. for colored males and a practically stationary rate for colored females. Considered according to age period, this increase of 1.0 per cent. in the cancer death rate of all persons in this experience, aged 25 years and over, was a composite of a decrease of 1.9 per cent. between 25 and 34 years, contributed very largely out of the experience of white and colored females, a practically stationary death rate between 35 and 44 years, which is, in itself, a composite of an increase for white and colored males and a decrease for white and colored females, and a slight decrease between 45 and 54 years. At this latter age period, we observe an increase of nearly ten per cent. in the white male rate, a decrease of 3.0 per cent. for white females, of 6.9 for colored females, and of 32.3 per cent. for colored males. The major influence, however, in slightly lowering the cancer death rate of all persons between 45 and 54 years was, of course, the experience of the group of white females. Between 55 and 64 years, all classes in the mortality experience show an increase in the rate, highest for colored males and least for white males. The age period 65 to 74 years shows an increase of 7.0 per cent. which is contributed very largely by the experience on male lives of each color group. It should be remarked that the cancer experience of colored persons exerts but slight influnce upon the ratio of increase of cancer mortality in the entire experience. In fact, for some of the age periods, the data on the increase of cancer mortality among colored persons are aberrant.

It will be seen from the foregoing table that considerable analysis of cancer facts according to age, sex, color and by organ or part affected is necessary before any final conclusions are drawn as to the amount of real increase in cancer mortality, if any, in recent years. A discussion, in some detail, of the cancer mortality experience according to the organs or parts follows.

CANCER* OF THE STOMACH AND LIVER.

The deaths classified under this heading constituted, as was shown above, the most important subordinate group of specific types of cancer. Cancers of the stomach and liver were recorded in 37.6 per cent. of all cancers in this entire experience. It should be remembered that this heading also includes cancers and other malignant tumors of the pharynx, the esophagus, and the gall bladder.† The combined total of malignant growths of the pharynx and esophagus, however, numbers less than five per cent. of all deaths recorded under this heading in general practice, and does not, therefore, seriously affect the present data. In gall bladder cancers the liver is frequently involved.

We recorded 14,153 deaths from malignant growths of the stomach and liver. The death rate was 26.3 per 100,000 persons exposed. As shown in the following table, the facts vary considerably according to color, sex and age period.

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* Cancer and other malignant tumors.

† The International list heading "Cancer of the Stomach, Liver," is somewhat misleading, inasmuch as cancers of certain other organs of the digestive system are classified under it, as noted above.

TABLE 95.

MORTALITY FROM CANCER OF THE STOMACH AND LIVER, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	26.3	24.8	29.8	16.2	18.5
1 to 24	.3	.3	.3	.2	.6
25 to 34	3.0	2.9	2.7	3.3	5.0
35 to 44	18.6	18.1	20.1	13.8	16.5
45 to 54	67.2	77.0	67.7	44.0	44.8
55 to 64	168.5	193.3	168.4	108.0	99.5
65 to 74	276.0	303.6	288.7	125.3	122.1
75 and over	334.7	339.1	353.3	164.6	217.8

There is a higher death rate for this cause, without important exception, for white lives than for colored lives. Below 35 years, mortality from cancer of the stomach and liver is not numerically important. The death rate increases from a figure of 18.6 in the age period 35 to 44 years to the maximum in the highest age period in this series, 75 years and over. From 45 years of age and onward, however, the death rate of white males for this disease is appreciably higher than the rate for white females, with the exception of the very highest age period, 75 years and over. Among colored persons the death rate from cancer of the stomach and liver is higher for males than for females between 55 and 74 years only. At the ages under 55 years, colored females show higher death rates from this cause than do colored males.

Comparison of Data for Cancer of the Stomach and Liver among Insured Wage Earners and among the Population of the Expanding Registration Area of the United States.

For both males and females at the ages where death rates from this cause are at all significant, a higher death rate is recorded among the group of insured wage earners than is observed in the Registration Area of the United States. Beginning with the age period 35 to 44 years, there is an excess of over nineteen per cent., between 45 and 54 years, an excess of thirty-two per cent., and between 55 and 64 years, an excess of twenty-nine per cent. over the rates for males prevailing in the expanding Registration Area of the United States. The excess in the death rate of cancer of the stomach among insured females is not so great as in the case of insured males. In the following table, a comparison of the foregoing facts is given:

TABLE 96.

MORTALITY FROM CANCER OF THE STOMACH AND LIVER.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over.....	24.8	30.5	81.3	29.8	32.1	92.8
Under 25...	.3	.4	75.0	.3	.3	100.0
25 and over.	65.8	56.4	116.7	63.0	61.4	102.6
25 to 34....	2.9	3.0	96.7	2.7	3.9	69.2
35 to 44....	18.1	15.2	119.1	20.1	18.2	110.4
45 to 54....	77.0	58.4	131.8	67.7	62.1	109.0
55 to 64....	193.3	150.2	128.7	168.4	147.5	114.2
65 to 74....	303.6	254.3	119.4	288.7	253.6	113.8
75 and over.	339.1	294.1	115.3	353.3	313.7	112.6

Trend of the Death Rate from Cancer of the Stomach and Liver.

Not much stress can be put on the figures showing the trend of the death rate in the period between 1911 and 1916. In the first place, the figures vary considerably from year to year, sometimes increasing, sometimes decreasing; also, cancer of the stomach and liver affects organs which are practically inaccessible for purposes of precise diagnosis. There must, therefore, be considerable uncertainty in the degree of precision of the diagnosis. It will be necessary, therefore, to wait for an extension in the period of observation before any definite tendency of the death rate from this form of cancer can be predicated. In the meanwhile as diagnostic facilities become more generally available and as the practice of making autopsies becomes more widespread it may be expected that the recorded death rates for cancer of the stomach and liver will show slight increases.

CANCER* OF THE FEMALE GENITAL ORGANS.

Cancer of the female genital organs accounted for 28.6 per cent. of all cancer deaths among white females. The very largest proportion of these cancers affected the uterus, with the ovaries and Fallopian tubes next in numerical importance.

TABLE 97.

MORTALITY FROM CANCER OF THE FEMALE GENITAL ORGANS, CLASSIFIED BY COLOR AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	White Females.	Colored Females.
All ages—one and over.......	25.3	37.9
1 to 19..........	.2	.2
20 to 24..........	1.0	1.3
25 to 34..........	7.9	17.7
35 to 44..........	43.4	62.9
45 to 54..........	85.7	109.7
55 to 64..........	109.4	131.6
65 to 74..........	110.3	131.5
75 and over.......	93.8	145.2

In all, 7,882 deaths from cancer of the female genital organs were recorded in the six year period of this study. The rate has significance only when the deaths are related to the number of females exposed. The 6,499 cancers registered among white females corresponded to a rate of 25.3 per 100,000 such females exposed and the 1,383 deaths among colored females to a rate of 37.9 per 100,000 exposed. Under the age of 25 years, there was no significant mortality from this cause. Beginning with the age period 25 to 34 years, however, there was a quite considerable rate of mortality, 7.9 per 100,000 for white females and 17.7 for colored females. This excess in the mortality rate from cancer of the female genital organs among colored females is decidedly marked at all of the age periods in this series. The maximum rates of mortality from this cause appear at the older ages. The foregoing table gives the facts according to age classes among white and colored females.

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* Cancer and other malignant tumors.

Comparison of Death Rates from Cancer of the Female Genital Organs in Insurance Experience on White Lives and in Experience of the Population of the Expanding Registration Area.

It is found that white females in wage earners' families show a decided excess in the mortality rate from cancer of the female genital organs over the rates recorded for females in the general population of the expanding Registration Area. The following table gives a comparative view of these death rates:

TABLE 98.

MORTALITY FROM CANCER OF THE FEMALE GENITAL ORGANS.

Death Rates per 100,000 Persons Exposed. Classified by Age Period. Insured White Females in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and Females in General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Registration Area.
All ages—one and over	25.3	25.0	101.2
Under 25	.4	.5	80.0
25 and over	53.2	47.7	111.5
25 to 34	7.9	8.4	94.0
35 to 44	43.4	34.7	125.1
45 to 54	85.7	75.6	113.4
55 to 64	109.4	99.9	109.5
65 to 74	110.3	103.2	106.9
75 and over	93.8	98.3	95.4

The greatest excess in mortality from cancer of the female genital organs among white females in the families of insured wage earners was recorded between 35 and 44 years. The percentage of excess in mortality from this cause among white females decreases with advancing age, and at the very late ages in life the rates for both the insurance and population experience tend to approximate each other.

Trend of the Death Rate from Cancer of the Female Genital Organs.

The figures available show neither a favorable nor unfavorable tendency of the death rate from cancer of the female genital organs. There are slight variations from year to year.

CANCER* OF THE BREAST.

TABLE 99.

MORTALITY FROM CANCER OF THE BREAST.

Number and Percentage of Total Deaths from Cancer of the Breast in Each Color and Sex Class.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Color and Sex.	Number of Deaths.	Per Cent.
All classes	3,579	100.0
White males	31	.9
White females	3,004	83.9
Colored males	9	.3
Colored females	535	14.9

In view of this very small number of male deaths from cancer of the breast, we shall concentrate our attention entirely upon the statistics for white and colored females. The following table gives the death rates for white females and colored females at the several age periods.

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* Cancer and other malignant tumors.

TABLE 100.

MORTALITY FROM CANCER OF THE BREAST: FEMALES CLASSIFIED BY COLOR AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	White Females.	Colored Females.
All ages—one and over	11.7	14.7
1 to 24	†	.1
25 to 34	2.5	3.3
35 to 44	17.4	18.9
45 to 54	36.9	41.9
55 to 64	47.6	59.9
65 to 74	76.0	96.3
75 and over	108.8	118.0

† Less than .05 per 100,000.

There is a constantly rising death rate with age from this cause for both white and colored females. There is also a decided excess in the death rate among colored over white females although this excess among colored females is not so marked as it was for cancer of the female genital organs.

Throughout the six years under examination, there was, with the exception of the year 1915 for colored women, little deviation in the death rate for cancer of the breast. In the following table, we quote our experience for each of the years from 1911 to 1916:

TABLE 101.

MORTALITY FROM CANCER OF THE BREAST. FEMALES CLASSIFIED BY COLOR. *Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

Years.	White Females.	Colored Females.
1911 to 1916	11.7	14.7
1916	11.8	14.9
1915	12.5	17.4
1914	11.4	12.3
1913	11.9	14.3
1912	12.1	15.6
1911	10.2	13.5

Cancer of the breast seems not to have as heavy a mortality among white insured females as it does among females in the population of the expanding Registration Area of the United States. Between 35 and 44 years, there is practically the same death rate from this cause in each experience. But, between 55 and 64 years, the group of insured females in wage earners' families shows much lower death rates from this cause than were found for females in the Registration Area of the United States. It should be recalled at this point that the data for the expanding Registration Area comprise a small proportion of colored women. This fact, on account of the higher death rate from cancer of the breast among negro women than among white women, may account in some measure for the higher mortality from this cause in the population experience over the exclusively white insurance experience. The following table affords a comparative view of the statistics for cancer of the breast among insured white females and among females in the general population of the expanding Registration Area:

TABLE 102.

Mortality from Cancer of the Breast.

Death Rates per 100,000 Persons Exposed. Classified by Age Period. Insured White Females in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and Females in General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Registration Area.
All ages—one and over	11.7	15.5	75.5
Under 25	†	.1	—
25 and over	24.7	29.7	83.2
25 to 34	2.5	2.7	92.6
35 to 44	17.4	17.5	99.4
45 to 54	36.9	41.3	89.3
55 to 64	47.6	61.0	78.0
65 to 74	76.0	81.0	93.8
75 and over	108.8	130.6	83.3

† Less than .05 per 100,000.

CANCER* OF THE PERITONEUM, INTESTINES AND RECTUM.

Cancer of the intestines constituted the very largest number of the 4,482 deaths under this head. The death rates by age, sex and color for this cause are shown below:

TABLE 103.

MORTALITY FROM CANCER OF THE PERITONEUM, INTESTINES AND RECTUM. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	8.3	6.6	10.5	3.4	7.2
1 to 24	.4	.4	.3	.2	.3
25 to 34	2.2	1.6	2.2	1.8	3.9
35 to 44	7.8	6.0	8.8	4.0	11.7
45 to 54	22.1	19.7	25.8	7.5	19.9
55 to 64	43.9	43.6	50.5	13.2	21.1
65 to 74	83.1	80.8	95.0	28.4	31.7
75 and over	109.5	86.5	130.6	96.0	36.3

Mortality from this form of cancer also increases with advancing age. White males show lower death rates at all significant ages than do white females. The colored male death rate from this cause is also decidedly lower than the rate for colored females. It would be well to recall at this present time that in this investigation tuberculous disease of the abdominal organs also shows a higher death rate among females of both white and colored races, especially at the ages of the childbearing period, 15 to 45 years. This fact suggests the possible influence of puerperal traumata as contributing causes in exciting both tuberculous and cancerous processes in the main adult ages among females.

At the ages in which the death rate from cancer of the peritoneum, intestines and rectum is considerable, insured white males show higher rates than do males in the general population. Between 45 and 75 years of age, the excesses in the rates range from

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* Cancer and other malignant tumors.

16 to 30 per cent. Insured white females, on the other hand, show no very marked tendency to depart from the general population experience. At some age periods, the death rate among insured white females is slightly more favorable and at other age periods slightly less favorable than among females in the general population. The following table gives a comparative view of the data for males and females of the insurance and population experience, considered according to age period:

TABLE 104.

MORTALITY FROM CANCER OF THE PERITONEUM, INTESTINES AND RECTUM.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over.....	6.6	8.6	76.7	10.5	10.4	101.0
Under 25...	.4	.5	80.0	.3	.3	100.0
25 and over.	16.9	15.5	109.0	21.9	23.5	93.2
25 to 34....	1.6	2.1	76.2	2.2	2.6	84.6
35 to 44....	6.0	5.5	109.1	8.8	9.1	96.7
45 to 54....	19.7	15.2	129.6	25.8	24.6	104.9
55 to 64....	43.6	37.6	116.0	50.5	51.8	97.5
65 to 74....	80.8	67.6	119.5	95.0	89.5	106.1
75 and over.	86.5	80.9	106.9	130.6	117.6	111.1

The data indicate a practically stationary death rate from this cause between 1911 and 1916.

OTHER FORMS OF CANCER.*

Discussion in great detail of cancers of organs and parts of the body, in addition to those covered by the preceding text, is not justified for many reasons. There are, however, many interesting and important age, sex, and color relations disclosed in the study of "other cancers" which should not be passed without brief comment. These we shall discuss briefly in relation to cancers of the buccal cavity, of the skin, and of all "other organs or of organs not specified" in the order named.

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* Cancer and other malignant tumors.

Cancer of the Buccal Cavity.*

Cancer of the buccal cavity, including cancer of the maxillae, caused 1,353 deaths during the six year period 1911 to 1916. This corresponds to a death rate of 2.5 per 100,000 exposed. Of the 1,353 deaths, 1,229 were those of white policyholders and 124 of colored persons. The death rate per 100,000 exposed was 2.6 for white lives as compared with 1.9 for colored lives. Cancer of the buccal cavity shows a very strong sex incidence. Of the 1,353 deaths, 1,064 were those of males and only 289 those of females. This excess among males applies to both white and colored lives; especially to the former, among whom male mortality (4.6) was more than five times that of females (.9). White males show a death rate almost twice that for colored males (4.6 as compared with 2.5). In the female experience the rate for colored women (1.3) exceeds that for insured white women (.9). This comparison for colored policyholders, however, is hardly valid on account of the small number of deaths involved.

The great majority of the deaths classified as due to cancer of the buccal cavity were reported under the terms "cancer of the jaw," "cancer of the tongue," "cancer of the lip," and "cancer of the mouth" without more definite designation.

There is no pronounced upward or downward trend shown for cancer of the buccal cavity in the Industrial experience of this Company during the six year period covered by this report. The death rate was 2.3 per 100,000 exposed in the first year of the sexennium as compared with 2.4 for the last year. The rates in the general population are slightly higher than those for the insured. This is accounted for largely by differences in the age distribution of the two populations. As a general proposition only 5 per cent. of the deaths from this disease occur among persons under 50 years of age. The great bulk of the deaths are those of men between the ages of 50 and 79.

Cancer of the Skin.*

Skin cancers were reported as causes of death in 938 cases in the mortality experience of insured wage earners covering the six year period 1911 to 1916, corresponding to a death rate of 1.7 per 100,000 exposed. Little fluctuation is shown in the rate when the years of the period are compared with one another. Cancer of the skin is, almost altogether, confined to white persons. In the Metropolitan experience 887 of the 938 deaths were those of white persons, the total white death rate being 1.9 per 100,000 exposed as compared with .8 for the colored insured. In the matter of sex incidence a considerable excess in the white experience is shown for males over females; the rate for the former being 2.2 as compared with 1.6 for the latter. The rates for colored policyholders are not so significant when compared by sex on account of the small number of deaths involved.

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* Cancer and other malignant tumors.

As with cancers of the buccal cavity, only a comparatively small percentum of the deaths from skin cancers are those of persons under 50 years of age. The mortality is bulked between the ages of 60 and 79 years. When we compare buccal and skin cancers by age groups we find that there is a much higher mortality, relatively, from the skin cancers in extreme old age than from cancers of the buccal cavity.

A lower death rate at all ages for this form of cancer is found among the insured than among the general population. The same explanation for this obtains as for cancer of the buccal cavity, namely, the lower average age of the group of policyholders. Like that of the insured group, the general population experience for this cause of death shows little change in the rate during the sexennium to which this report relates. The great majority of the deaths charged to this title heading were reported in one of the following ways: cancer of the face, cancer of the nose, cancer of the skin, rodent ulcer, and epithelioma (location not indicated).

Cancer and Other Malignant Tumors of Other Organs or of Organs not Specified.

The above is a *residual* heading under which are classified all deaths from cancers that cannot be definitely assigned to one of the preceding titles; it also includes cancers in which no statement is given of the location or original seat of the disease. The more definite titles included are the cancers of the bladder, of the prostate, of the pancreas, of the kidney and suprarenals, of the lung and pleura, of the bones (jaw excepted), of the larynx, of the brain, of the testes, of the parotid gland, and of the spleen.

This title constitutes an important cause of death numerically in the present experience. No fewer than 5,279 deaths were charged to it and the corresponding rate was 9.8 per 100,000 exposed. With the exception of cancer of the stomach and liver, and cancer of the female genital organs, more deaths are charged to this residual title than to any of the other separate headings relating to malignant growths.

There was only a very small fluctuation in the death rate during the several years which constitute the period to which this report relates. This same phenomenon is in evidence for the expanding Registration Area of the United States. The death rate for this cause, however, is considerably higher in the latter experience for these forms of cancer than among the insured group.

The total death rate for the insured white experience was 10.1 per 100,000 exposed as compared with 7.6 for the colored experience. In each, the mortality among males was higher than among females, although this is much more pronounced among the white policyholders than among the colored. This excess for males is accounted for, in part, by the fact that all deaths from cancers of the male genitals are classified under this heading.

CHAPTER X.

CEREBRAL HEMORRHAGE AND APOPLEXY.

Cerebral hemorrhage and apoplexy may be, in many cases, the terminal stages of several underlying diseases of the cardiovascular-renal system. Unfortunately, classification procedure is still rather unsettled with reference to the assignment of the cause in cases of terminal cerebral hemorrhage and apoplexy, even when the primary disease of the heart, blood vessels or renal tract is mentioned. In some cases the hemorrhage is preferred in the statistical registration of the death; in other cases precedence is given to the antecedent condition. But in many cases no mention of the primary disease is made by the physician and this probably explains the large number of deaths which are annually ascribed to cerebral hemorrhage and apoplexy in most mortality reports. Often these deaths are sudden ones and are certified by coroners or by their physicians, who see the cases only after death and who are guided by the clinical picture of an apoplexy. Much uncertainty, therefore, still surrounds the statistics of this disease, and of its underlying causes, especially when we consider that only a very small proportion of the certifications are confirmed by the findings at autopsy. The figures for cerebral hemorrhage and apoplexy may be subject to very considerable revision in the future.

In the six year period 36,638 deaths were assigned to this cause in the Industrial experience. This corresponds to an annual average rate of 68.1 per 100,000 exposed. The condition stands seventh in numerical importance in our list, accounting for 5.8 per cent. of all the deaths. We shall see later that this condition is much more important with reference to the advanced age periods of life. The table on page 174 shows the death rates by color, sex and by age period.

There is no considerable mortality from this cause under 25 years of age. Beginning with the age period 25 to 34 years there is the significant mortality rate of 8.9 per 100,000 persons exposed. Between 35 and 44 years a death rate of 35.9 per 100,000 is found and thereafter the figures increase very rapidly, nearly trebling in

TABLE 105.

MORTALITY FROM CEREBRAL HEMORRHAGE AND APOPLEXY, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	68.1	60.2	69.5	76.9	97.4
1 to 4	3.1	2.5	2.9	7.7	7.6
5 to 9	.7	.7	.6	2.9	.6
10 to 14	.8	.8	.5	1.6	2.2
15 to 19	1.6	1.2	1.4	2.9	5.0
20 to 24	2.9	2.5	2.3	5.9	7.4
25 to 34	8.9	8.7	6.5	18.9	14.4
35 to 44	35.9	33.8	28.3	54.8	65.7
45 to 54	130.6	123.2	113.6	185.7	223.0
55 to 64	359.0	377.5	323.0	423.2	483.7
65 to 74	918.4	979.0	877.7	855.3	979.5
75 and over	1841.5	2011.7	1775.5	1605.2	1624.2

some cases, until the maximum rate, 1841.5, is attained for the period 75 years and over.

The rate varies with color and sex. Colored persons show a rate for each of the sexes which is at some age periods more than twice the death rate of white persons of the same sex group. With increasing age, however, the excess of colored mortality becomes less marked. Indeed, for the age period 65 to 74 years, the rate for white males is higher than that for colored males, and at the extreme of life, ages 75 and over, the rate for the colored of each sex is the lower. In each color group at all ages combined the females show a higher rate than the males. This condition is particularly marked among colored lives. Analyzing by age period, however, we find an interesting difference between the two races. The higher rate for white females at all ages one and over combined is evidently due to the higher average age of the living; the specific rates are lower at each age period, practically, than those for white males. Among the colored, on the other hand, a different situation occurs, for in this group the rate for females is, with but one exception, higher than that for males beginning with the period 10 to 14 years. The excess is marked in the significant periods of middle life and old age.

The above variations in the death rate according to color must not be stressed too much because of the element of uncertainty in the statistical treatment of statements of this cause of death. It must be remembered that the higher rate for colored persons may be partly explained by the fact that this race has not as yet available for its service a medical practice of as high standards as has the white race. This latter fact would naturally result in a larger number of certifications of "hemorrhage of brain" instead of more specific certifications of underlying diseases of the cardio-vascular-renal tract. There is sufficient excess, however, in the colored over the white rates to justify a conclusion that negroes suffer from cerebral hemorrhage and apoplexy somewhat more than white people. We may also safely conclude that negro women die from this cause more frequently than do negro men at middle and advanced life.

Our present array of statistics does not give a true picture of the importance of cerebral hemorrhage and apoplexy at the advanced years of life, because only a small proportion of policyholders are represented after age 65. It will be instructive to refer at this point to a special study which was made of population mortality statistics of old age.* In that report it was pointed out that cerebral hemorrhage and apoplexy in the population of the Registration Area of the United States is a most important cause of death during old age. In fact, beyond age 65 this condition causes more than one death in every eight.

The table on page 176 presents a comparison of the death rates of the general population in the expanding Registration Area for 1910 to 1915 by sex and by age period with those for insured white lives, 1911 to 1916.

We find, in general, higher mortality among insured wage earners than in the general population. Thus, between 45 and 54 years, insured white male wage earners show a death rate of 123.2 which is 141 per cent. of the rate for males in the general population (87.4 per 100,000). Between 55 and 64 years, white males in the insurance experience registered a rate of 377.5 per 100,000 exposed, as compared with 276.1 per 100,000 among males in the general population. Practically similar excesses in the death rates of insured white females were observed. It should be recalled in

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* Dublin, Louis I., "The Vital Statistics of Old Age," *New York Medical Journal,* May 19, 1917.

TABLE 106.

MORTALITY FROM CEREBRAL HEMORRHAGE AND APOPLEXY.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over.....	60.2	76.6	78.6	69.5	77.7	89.4
1 to 4.....	2.5	2.5	100.0	2.9	2.4	120.8
5 to 9.....	.7	.9	77.8	.6	.9	66.7
10 to 14....	.8	.9	88.9	.5	.8	62.5
15 to 19....	1.2	1.8	86.7	1.4	1.5	93.3
20 to 24....	2.5	2.9	86.2	2.3	2.6	88.5
25 to 34....	8.7	7.4	117.6	6.5	6.3	103.2
35 to 44....	33.8	25.2	134.1	28.3	23.9	118.4
45 to 54....	123.2	87.4	141.0	113.6	92.7	122.5
55 to 64....	377.5	276.1	136.7	323.0	255.0	126.7
65 to 74....	979.0	709.0	138.1	877.7	648.7	135.3
75 and over.	2011.7	1610.2	124.9	1775.5	1622.2	109.5

making this comparison, however, that a considerably larger proportion of deaths, originally reported by physicians as due to "paralysis without specified cause," are assigned upon special inquiry to cerebral hemorrhage and apoplexy in the insurance experience than in the population experience. This factor, we believe, is not powerful enough, however, to account for all of the differences in the two series of death rates for this particular cause. There is still a significant excess remaining in the death rates of male and female white insured wage earners.

Trend of the Death Rate from Cerebral Hemorrhage and Apoplexy.

Considering all the influences at work that affect the registered death rate for cerebral hemorrhage and apoplexy, it may be said that no well-defined upward or downward tendency can be discerned in the mortality from this disease in recent years. There was a marked increase in the death rate between 1911 and 1912, but this is, in all probability, due to the inauguration in the Statistical Bureau of the system of inquiry into returns of "paralysis." It will be seen that since 1912, during which time this inquiry practice as to "paralysis" was carried out uniformly with vigor, there has been no significant variation in the death rate from this cause, from an average of about 68 deaths per 100,000 persons exposed. There is an apparently heavier rate among both colored males and females in the later than in the earlier years of this experience. This fact is accounted for, to some extent, in our opinion, by gradually improving statements of diagnosis on the death certificates of colored policyholders and does not indicate, we believe, any actual change among colored persons in the conditions causing the disease. "Paralysis" without further definition was at one time in this experience a very common return of cause of death in the case of colored persons. This report is not now relatively so frequent. The facts for each of the calendar years in this experience are shown in the following table:

TABLE 107.

MORTALITY FROM CEREBRAL HEMORRHAGE AND APOPLEXY, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	68.1	60.2	69.5	76.9	97.4
1916.......	68.7	58.8	70.1	80.2	110.4
1915.......	68.5	60.1	68.1	83.5	109.8
1914.......	69.2	59.9	72.0	76.7	98.4
1913.......	67.2	59.9	68.4	74.9	94.8
1912.......	70.3	63.5	72.2	77.3	89.8
1911.......	64.2	59.8	65.4	67.5	77.5

CHAPTER XI.

THE FOUR PRINCIPAL COMMUNICABLE DISEASES OF CHILDHOOD.

The four principal communicable diseases of childhood, namely, measles, scarlet fever, whooping cough and diphtheria constitute an interesting group for detailed study and analysis. Together, they were responsible for a total of 25,578 deaths during the six year period or for 4 per cent. of the entire mortality. If related to the period of childhood where nearly all of these deaths occur, their importance is more obvious; for they caused 24.2 per cent. of all the deaths among children under age 15. Even this high proportion is increased as we examine the conditions in the still earlier age periods.

These diseases and conditions are all characterized by their wide geographic distribution, their highly infectious character and, usually, by their low lethal rates. They are, preeminently, diseases subject to public health control. In fact they show clearly the effect of such control in their rapidly declining relative numerical importance as causes of death. While the decreases in the death rates are not always continuous, they are nevertheless substantial, when the entire six year period is considered. Furthermore, the rates give considerable promise of further reduction as the diseases come under more complete public health control.

These four diseases possess certain interesting statistical characteristics in common. In the case of each, the mortality was higher in the earliest age period, 1 to 4 years, than in any other age group. This characteristic is most pronounced with whooping cough. The death rates rapidly decline from the first age period, but continue to show appreciable figures throughout the period of childhood. With the single exception of whooping cough, these diseases show higher urban than rural rates in populations generally. With the exception of whooping cough again, they have a higher incidence among males than among females and much higher incidences among white children than among colored children. In fact, diphtheria, scarlet fever and measles are not very serious causes of death among colored children. Whooping cough, on the other hand, shows a small excess for females and a death rate almost twice as high for colored as for white children of each age group.

We shall consider these causes individually in the following order: measles, scarlet fever, whooping cough and diphtheria.

(*a*) MEASLES.

This disease is defined as an acute and highly contagious fever with specific localization in the upper air passages and in the skin. It ranks second to diphtheria as a cause of death among the four principal communicable diseases of children. As a cause of sickness it is probably the most widespread of all the communicable diseases; but this is compensated by its usually low lethal rate. In fatal cases, death is usually due to respiratory complications; more particularly to bronchopneumonia. It is frequently followed in non-fatal cases by otitis media, and indeed, a considerable proportion of the deafness in the country has been traced to ear disease secondary to measles.

Measles, like most diseases with skin manifestations, shows a much higher death rate among white persons than among colored people. As will be observed in the table below, the excess in the white rate is most marked in the period under 5 years. Thereafter the differences are minor and, in fact, after age 10 the rates for colored persons are higher than for white persons. It is true that the number of deaths at the ages after age 10 is very small.

TABLE 108.

MORTALITY FROM MEASLES, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	8.9	10.5	8.6	5.2	4.8
1 to 4.....	81.1	84.1	80.0	68.6	67.3
5 to 9.....	10.9	10.5	11.4	9.7	11.2
10 to 14....	1.7	1.3	1.9	2.2	3.4
15 to 19....	1.1	1.0	.9	2.9	2.1
20 and over.	.5	.3	.6	.4	.6

The death rate is higher, also, among males than among females. This applies especially to the age period 1 to 4 years in which 75 per cent. of the measles deaths among insured children occur. The age at which the highest mortality occurs is the second year of life; with this exception, the largest number of deaths in populations generally occur among infants under one year of life. The deaths of infants do not enter into this study, however, since persons are not insured until after the close of the first year of life.

The table on page 179 presents the death rates by color, sex and age period for this disease.

Very similar relations are found in the death rates of children from measles according to sex and age in the general population of the expanding Registration Area, although the actual death rates by age period and sex are slightly different from those found in the insurance experience. The measles death rate in the general population is considerably lower than that for the insured group. This is quite marked in the two age periods under 10 years. After 10 years, the reverse condition holds, but no great significance can be attached to the figures. There are obvious reasons why the death rate among insured children should be higher than for children in the general population. In the first place, insured children are almost entirely urban residents and the urban death rate is about double the rural rate for this disease. The population of

TABLE 109.

MORTALITY FROM MEASLES.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over.....	10.5	6.8	154.4	8.6	7.1	121.1
1 to 4.....	84.1	63.4	132.6	80.0	59.8	133.8
5 to 9.....	10.5	7.7	136.4	11.4	7.8	146.2
10 to 14....	1.3	1.9	68.4	1.9	2.5	76.0
15 to 19....	1.0	1.8	55.6	.9	1.8	50.0
20 and over.	.3	.7	42.9	.6	1.2	50.0

the Registration Area is about equally divided between the urban and rural communities. Another factor favoring the Registration Area is the inclusion in the latter of a small proportion of colored lives whose death rates from measles are lower than those for whites. The table on page 180 permits a more detailed comparison of the two sets of figures by age and sex.

The mortality from measles has been showing marked fluctuations in recent years. This tendency has been observed in both the general population and the insured group. The year 1915 marked the minimum death rate for this disease in both experiences. For that year the rate was 5.7 per 100,000 exposed for Metropolitan Industrial policyholders aged one year or more and 5.4 per 100,000 exposed for the general population at all ages. In this comparison the rates include both white and colored children among the insured. The year 1915, it may be remarked, showed the lowest death rate recorded for measles for the general population since the beginning of the period covered by the annual mortality reports relating to the expanding Registration Area. The year 1916, however, showed a pronounced increase in both experiences, although this was not as marked among the insured group as it was for the expanding Registration Area, in which the death rate more than doubled. The following table shows the trend of the mortality among white and colored policyholders by sex during the period 1911 to 1916:

TABLE 110.

MORTALITY FROM MEASLES, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	8.9	10.5	8.6	5.2	4.8
1916.......	9.9	12.2	9.4	4.0	3.5
1915.......	5.7	6.5	5.9	2.3	2.4
1914.......	6.9	8.1	6.5	4.8	4.0
1913.......	12.3	14.2	12.1	7.6	6.5
1912.......	7.6	9.3	7.2	3.9	3.6
1911.......	11.4	13.0	10.5	9.4	9.2

Comparisons of the death rate for this disease covering long periods of years should be made only with certain reservations. In fatal cases usually the complications and sequelae are the immediate causes of death. Only a few years ago there was very great understatement of this condition on reports of causes of death. This situation has been gradually improved through the efforts of National, state and corporate bureaus interested in mortality statistics. Year after year increasing numbers of physicians have learned the importance of stating primary conditions instead of sequelae and terminal complications as determining causes of death. Measles is one of the diseases the published death rates for which have been very materially affected by this influence. No doubt there is still some understatement but the condition has shown very great improvement. Those who make comparisons and analyses based on the published death rates for this disease should make due allowance for the influence of these factors.

(*b*) Scarlet Fever.

Probably there have been few more gratifying evidences of the effectiveness of public health activity in this country than the consistent decrease in scarlet fever mortality. The attention given by public health officials to prophylaxis, the increasing rigidity of school inspection, the education of the public on the necessity of care and precaution against the spread of the disease, have all been potent factors in lowering the mortality from scarlet fever. There has also been more widespread public appreciation, not only of the more or less immediately fatal results, but of the serious sequelae of the disease.

There were 4,638 deaths from scarlet fever among Metropolitan Industrial policyholders during the period 1911 to 1916. The death rate was 8.6 per 100,000 exposed.

The death rate among white policyholders, both male and female, was about four times as high as that for the colored policyholders. This is a condition which has also obtained, year by year, for the population of the expanding Registration Area. The comparative immunity of colored persons to this disease has long been recognized. The sex incidence for the insured shows a heavier comparative death rate for males over females among white policyholders than among colored ones. The colored experience, however, is small, and this comparison is, possibly, not significant.

The age period of heaviest mortality, in the Metropolitan experience, is the period 1 to 4 years, during which ages 2,210 deaths or 47.6 per cent. of the total of 4,638 deaths occurred. The following table gives the death rates by age period for each color and sex class:

TABLE 111.

MORTALITY FROM SCARLET FEVER, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	8.6	10.6	8.6	2.5	2.2
1 to 4......	49.0	53.5	48.8	16.0	22.2
5 to 9......	22.5	24.3	23.4	8.8	6.4
10 to 14.....	6.4	5.8	7.5	5.1	2.5
15 to 19.....	2.8	3.0	2.9	1.0	2.3
20 to 24.....	1.6	1.2	2.2	—	.5
25 and over..	.5	.4	.6	.2	.3

The sex and age characteristics brought out by examining the comparable figures for the expanding Registration Area (with the population under one year eliminated) do not differ materially from those shown above for the Metropolitan experience. It is true that the slight excess which is recorded among insured males over females is not in evidence for the general population. In the latter experience the mortality rate for the period 1910 to 1915 for males was 7.1 per 100,000 population; this corresponds closely to the rate shown for females (7.5). For the age period 1 to 4 years the insured white male children show a higher rate (53.5 per 100,000 exposed) than is in evidence for those of the same age group in the general population (45.8); the insured females of this age group show about the same excess over the females in the general population (48.8 as compared with 42.8). In the age period 5 to 9 years the insured white males registered a higher death rate than did the males of the general population and the insured white females also showed a very slight excess. It must be borne in mind, however, in making this comparison, that the colored population in the expanding Registration Area is included, and that on account of the extremely low incidence of scarlet fever among colored people it is probable that their inclusion in the exposure accounts for a considerable share of the excess which is shown for the insured white children. Another element which should be considered in comparing the mortality from this disease among insured children and those of the general population is the far higher proportion of urban exposure among the policyholders. The mortality reports covering the general population show, year after year, considerably higher death rates for scarlet fever in the cities than in the rural communities, and the rates for the insured do not have the benefit of much rural exposure. The following table shows, side by side, the figures for males in the expanding Registration Area compared with those for white insured males; also the figures for females in the Registration Area compared with those for white insured females:

TABLE 112.

MORTALITY FROM SCARLET FEVER.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over.....	10.6	7.1	149.3	8.6	7.5	114.7
1 to 4.....	53.5	45.8	116.8	48.8	42.8	114.0
5 to 9.....	24.3	22.0	110.5	23.4	23.1	101.3
10 to 14....	5.8	6.0	96.7	7.5	7.1	105.6
15 to 19....	3.0	2.8	107.1	2.9	3.1	93.5
20 to 24....	1.2	1.6	75.0	2.2	2.2	100.0
25 and over.	.4	.6	66.7	.6	.7	85.7

The highest death rate during the period for Metropolitan Industrial policyholders was that for the year 1911 (13.1); the death rate for 1913 was 12.7; for 1914, 9.8; for 1912, 9.0. For the year 1915 there was a decrease to 4.6 and this was followed by a further decline in 1916 to 4.1.

This experience corresponds closely to that of the Registration Area. The trend of the mortality due to scarlet fever during the period 1911–1916 among Metropolitan Industrial policyholders is shown by the following table:

TABLE 113

MORTALITY FROM SCARLET FEVER CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company, Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	8.6	10.6	8.6	2.5	2.2
1916.......	4.1	4.7	4.0	2.2	1.8
1915.......	4.6	5.8	4.3	1.9	2.2
1914.......	9.8	12.1	9.7	3.3	2.9
1913.......	12.7	16.0	12.7	3.0	2.3
1912.......	9.0	11.1	9.1	1.7	2.4
1911.......	13.1	16.2	13.6	2.8	1.3

It is not necessary to comment in this report, at length, on the greatly decreased and almost continuously decreasing mortality from scarlet fever as shown both by the experience among Metropolitan Industrial policyholders and by the reports of the Bureau of the Census since the year 1900. Inasmuch as the mortality from this disease is of such great interest from a public health standpoint, one cannot fail to be impressed by the great saving of life which these reports show—especially when we examine the annual Census mortality volumes beginning with the year 1900. Special emphasis should be laid on this point: great as is the decrease in the mortality as indicated by the published death rates for the Registration Area, there has been a still greater *actual* decrease. The published death rates for scarlet fever have been materially increased by the educational work of public and corporate registration offices in securing increased precision of statement of causes of death.

In a recent study of the mortality of childhood,* it was shown that scarlet fever, while unimportant as a cause of death in the first year of life caused 1.7 per cent. of all the deaths between one and two years of age in the Registration Area during the period 1910 to 1915; 4.7 per cent. between two and three years; 7.0 per cent. between three and four years and 7.6 per cent. during the fifth year of life. During the second quinquennium 7.1 per cent. of all of the deaths were ascribed to scarlet fever. This percentage dropped to 3.0 during the third quinquennium.

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* "The Mortality of Childhood," Dublin, Louis I. Read at the Seventy-ninth Annual Meeting of the American Statistical Association, Philadelphia, December 27, 1917. Published in *Quarterly Publications of the American Statistical Association,* March, 1918.

(*c*) WHOOPING COUGH.

Like measles, whooping cough is seldom fatal when uncomplicated. When whooping cough causes death it is usually through terminal pulmonary conditions, bronchopneumonia in particular. Because of its very wide prevalence it is, like measles again, a very dangerous disease and one which stands high among the fatal affections of children. In all, 3,075 deaths were caused by whooping cough among policyholders during the period 1911 to 1916, corresponding to a rate of 5.7 per 100,000 exposed at all ages.

The disease is limited almost entirely to the ages of childhood. Of all the deaths, 98.2 per cent. occurred among children between one and nine years old, and 86.7 per cent. of the decedents were between one and four years of age. There is, therefore, very little room for a discussion of whooping cough mortality by age period apart from the first two quinquennia of life. The following table shows the facts for the ages under 10 years for each color and sex group:

TABLE 114.

MORTALITY FROM WHOOPING COUGH, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	5.7	4.7	5.6	9.2	9.3
1 to 4......	59.1	42.0	60.9	151.3	173.9
5 to 9......	4.9	3.0	4.9	12.7	17.3
10 and over..	.1	.1	.1	.2	.4

Unlike the other communicable diseases of children the death rate for whooping cough is considerably higher among colored than among white children. In fact in the age period of 1 to 4 years, the mortality from whooping cough among colored boys and girls is approximately three times as high as among white children of the same ages. The disease is also more prevalent among females than among males. This is true for each of the significant age periods and for each race. Similar relations are found to exist in the data for the population of the Registration Area. The following table which is limited to the significant age periods will serve as a basis for comparison of the mortality from this disease in the two experiences:

TABLE 115.

MORTALITY FROM WHOOPING COUGH.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
1 to 4.....	42.0	40.0	105.0	60.9	55.6	109.5
5 to 9.....	3.0	3.2	93.8	4.9	4.6	106.5
10 and over.	.1	.1	100.0	.1	.2	50.0

In all comparisons between the mortality experience of Metropolitan Industrial policyholders and of the expanding Registration Area, for whooping cough, we should not lose sight of the fact that of the four chief epidemic diseases known as "children's diseases," namely, measles, scarlet fever, diphtheria and whooping cough, the last named is the only one for which the mortality is higher in rural than in urban districts. The fact that the rural population in the Registration Area is large and that among the Industrial policyholders of the Company it is small, must, therefore, always be considered in comparing the two experiences.

The trend of whooping cough mortality has been downward since 1911. The variations in the rate from year to year are largely accounted for by the epidemic character of the disease. The rate for 1916, for example, rose very appreciably over that for 1915 but is nevertheless much lower than the rate for 1911. The trend corresponds closely with that in the expanding Registration Area, but for both experiences it may safely be said that a large measure of mortality, entirely unnecessary and subject to ready control, would be eliminated if the necessary steps were taken to impress upon the public the truly dangerous character of the disease and to prevent children from coming in contact with those afflicted. The following table shows the figures for whooping cough for each of the six years:

TABLE 116.

MORTALITY FROM WHOOPING COUGH, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	5.7	4.7	5.6	9.2	9.3
1916.......	5.8	4.9	6.3	7.3	6.5
1915.......	4.7	4.3	4.6	6.8	6.6
1914.......	5.8	4.7	5.6	10.0	10.6
1913.......	5.9	4.5	5.8	10.5	11.1
1912.......	5.1	4.3	4.9	7.9	8.3
1911.......	7.1	5.5	6.8	13.3	13.5

As with all epidemic diseases there is, among physicians, a tendency in fatal cases to report on death certificates the terminal complication to the exclusion of the primary cause. The fact that the profession has been less prone to do this in later years than in earlier ones affects very materially the comparability of a series of death rates for whooping cough extending over a long period of years Unless the compiling offices, which publish figures for different areas, have been equally assiduous in their efforts to correct these careless statements of cause of death, the comparability of one set of death rates with another is extremely questionable. When allowance is made for this factor, it is evident that there has been a considerable decrease in the mortality in the expanding Registration Area of the United States since 1900, although the published figures themselves, if not competently and critically analyzed, do not indicate this. Thus, the published annual average death rate in the expanding Registration Area for the period 1901 to 1905 was 10.9 per 100,000 population, which is but little higher than the 10.2 in that area for the year 1916. There has been, however, as a matter of fact, a greater decrease in the actual mortality from whooping cough than these figures indicate, because the earlier compilations are not based on so high a proportion of accurate statements of the primary cause of death as are the later ones.

(*d*) DIPHTHERIA AND CROUP.

The deaths included under this title are very nearly all certified in modern practice as due to "diphtheria." The former usage of the words "croup" and "membranous croup" as synonyms for diphtheria is no longer current. It is believed that the statistics on diphtheria in this report are especially accurate, first, because of the characteristic and, for the most part, unmistakable clinical picture in fatal diphtheria and, second, because of the care taken in this office to secure as accurate a statement of the cause of death from the physician as possible.

TABLE 117.

MORTALITY FROM DIPHTHERIA AND CROUP, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	24.3	29.8	23.8	9.6	8.6
1 to 4......	152.2	165.3	149.2	90.4	75.5
5 to 9......	66.1	68.1	70.0	31.8	35.2
10 to 14.....	13.8	12.6	16.0	8.2	10.3
15 to 19.....	3.0	3.0	3.1	2.2	3.2
20 to 24.....	1.6	1.5	1.5	2.3	1.6
25 to 34.....	1.3	.8	1.5	.7	2.3
35 to 44.....	.9	1.0	.9	1.0	1.0
45 and over..	.8	.7	.8	.7	1.1

Diphtheria begins to assume importance as a cause of death in the second year of life. In the third year of life, between two and three years of age, it is the third cause of death in numerical importance. Between three and four years, between four and five years and in the age period five to nine years, diphtheria is the first cause of death in order of numerical significance. In the five year age period ten to fourteen years, this disease constitutes the third cause of death in numerical rank. There is an appreciable death rate from the disease at the various ages in adult life. The age statistics for the disease are given in the table on page 189.

As was the case for scarlet fever and measles, both colored males and females show very much lower death rates for diphtheria than do white males and females. Between one and four years of age, the death rate of females from diphtheria is lower than that for males among both the white and colored race groups in this experience. Beginning with the age period five to nine years, however, and up to twenty years of age the mortality for females from diphtheria is significantly higher than for males. This applies to both the white and colored groups.

Death Rate from Diphtheria among Insured Children of White Wage Earners and among Children in the Population of the Expanding Registration Area Compared.

At the ages under 15 years, the diphtheria death rates of both male and female children of insured wage earners are higher than

TABLE 118.

MORTALITY FROM DIPHTHERIA AND CROUP.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over.....	29.8	17.2	288.8	23.8	17.3	137.6
1 to 4.....	165.3	127.3	129.9	149.2	113.8	131.1
5 to 9.....	68.1	48.7	139.8	70.0	51.8	135.1
10 to 14....	12.6	11.4	110.5	16.0	13.1	122.1
15 to 19....	3.0	3.4	88.2	3.1	3.7	83.8
20 to 24....	1.5	1.7	88.2	1.5	2.2	68.2

the corresponding rates among children in the expanding Registration Area of the United States. Between one and four years the excess amounted to practically 30 per cent., and between five and nine years, to practically 40 per cent. for insured males, and to 35 per cent. for females. The table on page 190 gives a comparison of the chief facts of diphtheria mortality at the ages under 25 years for both the insurance and the population experience.

Trend of the Death Rate for Diphtheria.

Barring two years in this experience, 1911 and 1913, there has been a slightly downward general tendency of the death rate from diphtheria. This corresponds fairly well to the tendency observed in the experience of the expanding Registration Area of the United States. The various methods employed in the control of diphtheritic infection and in the reduction of case mortality have been productive of results in those countries which have fairly well organized systems of preventive medicine. In the United States, for instance, the death rate of the Registration Area was 43.3 per 100,000 persons in 1900, and 15.7 in 1915, the latter rate being the lowest recorded in any of the years since 1900. It may be expected that from time to time epidemics of this disease will serve to raise the rate somewhat, but, in the long run, the various preventive measures employed, especially the administration of diph-

TABLE 119.

MORTALITY FROM DIPHTHERIA AND CROUP, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	24.3	29.8	23.8	9.6	8.6
1916.......	21.0	25.4	20.4	8.5	7.8
1915.......	21.4	26.3	20.7	8.5	8.4
1914.......	25.7	30.8	25.8	7.1	10.6
1913.......	27.2	33.3	26.7	11.7	8.8
1912.......	24.5	30.5	23.5	11.2	7.8
1911.......	27.3	34.0	26.6	10.7	7.9

theria antitoxin, the extension of school medical inspection, the effective quarantine of cases and the detection of atypical carriers, may be depended upon to still further reduce mortality from this cause.

The table on page 191 gives the facts for each calendar year, 1911 to 1916, in this experience.

CHAPTER XII.

DIARRHEA AND ENTERITIS.

The data for diarrhea and enteritis presented in this report do not distinguish between infantile diarrhea as classified under Title No. 104 of the International List, and diarrhea and enteritis (affecting persons two years of age and over) as compiled under Title No. 105. The largest proportion of the deaths from infantile diarrhea and enteritis occurs in the general population under one year of age. Since no persons under one year of age are included in this insurance experience, a distinction in our figures of the type of diarrhea would affect only those deaths between ages one and two. These have no great significance. This accounts for the decision to combine the two titles. There were included under the title, thus understood, all forms of inflammatory, ulcerative or catarrhal conditions of the intestines or of the gastroenteric tract where the intestines were chiefly involved, except those definitely reported as due to tuberculous, cancerous, dysenteric or other primary factors.

It should be remembered that this cause of death may be either primary or secondary. Only the presumably primary cases are listed in this experience, and these cases result, especially among children, from the use of improper food, from various toxic substances produced in the decomposition of food, from the extreme heat of summer; or, as in senility, from changes in the constitution of intestinal secretions. These constitute the larger proportion of the cases in the insurance experience. The secondary cases of diarrhea and enteritis follow certain infectious diseases such as true dysentery and typhoid fever; they also follow circulatory disturbances which cause a catarrhal enteritis of chronic character, and they are common in diseases of the liver and in chronic conditions of the heart and lungs, as well as in cachectic conditions such as cancer, pernicious anemia and Bright's disease. None of the above is included in the present discussion.

The total number of deaths assigned to the combined title during the period between 1911 and 1916 was 14,173. These deaths accounted for 2.2 per cent. of the entire mortality and corresponded to a rate of 26.3 per 100,000. The rates according to color, sex and age are shown in the following table:

TABLE 120.

MORTALITY FROM DIARRHEA AND ENTERITIS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	26.3	28.2	24.6	26.4	27.7
1 to 4	208.7	210.6	197.1	298.0	249.4
5 to 9	8.8	8.2	8.4	10.1	16.9
10 to 14	2.4	2.1	2.0	3.8	6.8
15 to 19	1.9	1.2	1.4	7.0	6.7
20 to 24	2.8	1.8	2.9	3.6	6.3
25 to 34	4.5	4.4	3.6	5.9	8.7
35 to 44	7.7	8.0	5.7	10.8	14.5
45 to 54	10.9	10.1	8.9	14.7	24.3
55 to 64	28.2	25.6	25.1	43.2	51.9
65 to 74	80.3	63.8	86.8	76.8	117.4
75 and over	182.5	180.2	183.3	150.9	208.7

The highest death rates in this experience are recorded in the first and last age periods, namely, 1 to 4 years and over 75 years. The minimum rate is in the period 15 to 19 years among the whites and in the period 20 to 24 years among the colored. There is considerable variability in the rates for the colored race by age period. From the minimum at 20 to 24 years the rates rise regularly and, after age 45 is reached, very rapidly, to their maximum in advanced old age. The period 65 to 74 years is an important one from the point of view of mortality from diarrhea and enteritis.

Colored persons, especially when considered for specific age periods, show higher rates than do white persons. The single exception is for males 75 years and over. It is quite possible that even this exception would be eliminated if the figures for colored males 75 and over were based on a larger experience. A feature of the colored experience is the maintenance of a comparatively high rate in the period of early adult life when the very lowest figures prevail for the whites. Thus, in the period between 15 to

19 years, the rate for colored lives is more than four times as high as for white lives.

The ratios of the death rates of the sexes vary for the two races. Among insured white lives the total rate is higher for males than for females but this is due principally to the higher mortality in the period of early childhood. In the period of old age the rates are higher for females. Colored females have higher rates than the males virtually throughout life with the exception of the period under five years. The excess in the rate of females is especially marked in the ages after 65 years.

Comparison of Mortality from Diarrhea and Enteritis among Insured Wage Earners and among the General Population of the Expanding Registration Area.

At the important age periods, that is, under 5 years and at 75 years and over, insured lives show lower death rates from these causes than are found in the population of the Registration Area of the United States. The single exception is found among the males 75 and over, but even there the difference is not marked. At

TABLE 121.

MORTALITY FROM DIARRHEA AND ENTERITIS.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Periods. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over....	28.2	28.0	100.7	24.6	28.9	85.1
1 to 4.....	210.6	232.3	90.7	197.1	210.0	93.9
5 to 9.....	8.2	8.0	102.5	8.4	8.0	105.0
10 to 14....	2.1	2.2	95.5	2.0	1.9	105.3
15 to 19....	1.2	1.5	80.0	1.4	1.7	82.4
20 to 24....	1.8	1.9	94.7	2.9	2.9	100.0
25 to 34....	4.4	3.2	137.5	3.6	3.6	100.0
35 to 44....	8.0	5.4	148.1	5.7	5.6	101.8
45 to 54....	10.1	9.1	111.0	8.9	9.9	89.9
55 to 64....	25.6	19.2	133.3	25,1	22.9	109.6
65 to 74....	63.8	48.8	130.7	86.8	63.9	135.8
75 and over	180.2	173.6	103.8	183.3	223.3	82.1

the age periods beyond 25 years there is, generally speaking, an excess among the insured over the general population, which is marked in the ages after 35 years among males. For the females the two sets of figures are not very different. When the urban character of the insured industrial population is considered with the fact that death rates from diarrhea and enteritis are uniformly higher in such areas than in rural communities, the generally favorable conditions found to prevail in the insurance experience at the youngest ages are even more remarkable. The table on page 195 exhibits the figures for the two groups.

Trend of the Death Rate from Diarrhea and Enteritis.

In general there has been a reduction in the death rate from this condition during the six year period but it has not been marked. There was hardly any change in the rate during the first three years; a reduction then occurred for the next two years and in 1916 an increase was registered. The rate in that year was not as high as during the first three years of experience in the present series. The reduction is much more consistent and noteworthy among colored males and females than among white. A similar tendency is observable in the figures for the expanding Registration Area but before any detailed comparisons can be made it must be remembered that the insurance figures do not include infants under one. The following table presents the figures for the trend of the death rate from diarrhea and enteritis among the insured wage earners:

TABLE 122.

MORTALITY FROM DIARRHEA AND ENTERITIS, CLASSIFIED BY COLOR AND BY SEX. *Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	26.3	28.2	24.6	26.4	27.7
1916.......	26.3	28.7	24.9	22.2	24.3
1915.......	24.4	26.3	22.5	25.6	25.4
1914.......	24.8	26.7	23.1	24.7	25.4
1913.......	27.7	29.9	26.0	26.2	28.3
1912.......	27.6	28.7	25.3	32.3	32.5
1911.......	27.9	29.2	26.4	28.0	31.0

CHAPTER XIII.

DISEASES AND CONDITIONS INCIDENTAL TO THE MATERNAL STATE.

A study of the mortality of women from the causes and conditions incidental to childbearing is of singular interest and importance at the present time in view of the nation-wide campaign for the conservation of civilian life during wartime. Deaths of women from these causes affect the community deeply because they are for the most part preventable, and because they occur at periods of life when each death involves serious social loss. The amount of such loss is very considerable. Between the ages of 15 and 45 years, the diseases and conditions incidental to child-bearing account for more deaths of women than does any other disease or class of diseases except tuberculosis. An examination of the available facts on maternal mortality should, therefore, assist materially in directing the plans which may be developed to control these causes of preventable death, distress and family disintegration.

The statistical study of these causes of death may be undertaken in a number of different ways. The first and usual method is to consider these diseases and conditions in a manner similar to other causes of death; namely, to relate the deaths to the total population. The rates obtained in this way serve to indicate the proper place of puerperal mortality among the several important conditions causing death in the whole population. Such mortality rates are, however, limited in their utility; for the deaths are of females alone, while the total population contains both males and females. Another method often used, is to relate the puerperal deaths to the total number of females in the community. This gives another and higher rate than the one noted above. The figure thus obtained has this limitation: the population refers to all females, whereas the deaths are those of women within a limited range of ages. We have, therefore, in our treatment followed a third method and have presented specific death rates which are limited to females of the childbearing ages, namely, 15 to 44 years. In every case we have attempted to give the facts for five and ten year age groups during this puerperal period. The rates are, therefore, based on deaths and on exposed lives homogeneous with respect to sex and age. A very sensitive measure of puerperal mortality is thus obtained.

In this investigation there were recorded in all 10,056 deaths from the diseases and conditions incidental to childbirth in the age period 15 to 44 years. This covers the six-year period from 1911 to 1916 inclusive. These deaths, when related to the 14,694,260 years of life exposed of women 15 to 44 years of age, correspond to a death rate of 68.4 per 100,000 women at these ages. Of the total deaths, 8,288 occurred among white females and 1,768 among colored females; the rates per 100,000 for the two races being 66.1 and 82.3 for the white and colored women respectively. It is, thus, shown at the outset that colored females suffer much more seriously than do white women from the diseases and conditions incidental to childbearing.

TABLE 123.

MORTALITY FROM PUERPERAL DISEASES AND CONDITIONS. CLASSIFIED BY COLOR. DEATHS IN AGE PERIOD 15 TO 44 YEARS.

Experience of Metropolitan Life Insurance Company. Industrial Department, 1911 to 1916.

Puerperal Disease or Condition.	White and Colored.			White.			Colored.		
	Deaths.	Per Cent. of Total.	Rate per 100,000.	Deaths.	Per Cent. of Total.	Rate per 100,000.	Deaths.	Per Cent. of Total.	Rate per 100,000.
Total puerperal diseases and conditions	10,056	100.0	68.4	8,288	100.0	66.1	1,768	100.0	82.3
Accidents of pregnancy	874	8.7	5.9	704	8.5	5.6	170	9.6	7.9
Puerperal hemorrhage	779	7.7	5.3	670	8.1	5.3	109	6.2	5.1
Other accidents of labor	1,020	10.1	6.9	827	10.0	6.6	193	10.9	9.0
Puerperal septicemia	4,321	43.0	29.4	3,494	42.2	27.9	827	46.8	38.5
Puerperal albuminuria and convulsions	2,654	26.4	18.1	2,233	26.9	17.8	421	23.8	19.6
Other puerperal diseases and conditions	408	4.1	2.8	360	4.3	2.9	48	2.7	2.2

The 10,056 deaths were due to a considerable number of diseases and conditions complicating or characteristic of the puerperal state. The most important of these is septicemia, which alone was responsible for 4,321 deaths, or 43.0 per cent. of the total. This condition was followed in order, by albuminuria and convulsions with 2,654 deaths, or 26.4 per cent. of the total. Together, these two definite conditions account for 69.4 per cent. of the fatal puerperal cases, but it is realized that the actual proportion is even higher. Many deaths from puerperal septicemia and puerperal albuminuria are, unfortunately, still reported under the disguise of one or another of these terms, without qualification, which results in their assignment to conditions which are not classified under the puerperal total.

The table on page 198 shows the number and percentage of deaths as well as the rates per 100,000 exposed from the several conditions incidental to childbirth; distinction is made as to the color or race of the decedents.

It would be interesting to classify these deaths according to the period of their occurrence, that is, whether during pregnancy, at confinement or during the puerperium. Unfortunately, present methods of certification and classification of these diseases make it impossible to draw such distinctions. To be sure the accidents of pregnancy occur in the antepartum period. The deaths from puerperal hemorrhage and from "other accidents of labor" are clearly associated with labor. On the other hand, such titles as puerperal septicemia and puerperal albuminuria and convulsions, which relate to the largest number of deaths, may cover all three periods in the puerperal state. Puerperal septicemia is most often a complication of labor and of the postpartum period, although a considerable number of deaths are associated with pregnancy as complications of abortion, miscarriage, etc. Fatal puerperal albuminuria and convulsions occur most frequently as complications of labor, less frequently during pregnancy and least of all during the puerperium.

Comparing the mortality of the two races, we find but few exceptions to the rule that the death rates of colored women are considerably higher than those of white women for each of the diseases and conditions mentioned. The largest disparity between the two races is to be noted for septicemia for which the white and colored rates are 27.9 and 38.5 per 100,000 respectively. It is interesting to observe that the mortality rate for puerperal hemorrhage is slightly lower for colored women as is also the case in the miscellaneous group entitled "other puerperal diseases and conditions." Even for these conditions the figures require further study before conclusions can be drawn. It is a question, if our figures related back to the total number of pregnancies rather than to the total number of women, ages 15 to 44, whether the rate would show up as favorably for colored as for white women.

Age Incidence of Principal Causes of Maternal Mortality.

The foregoing observations on maternal mortality are of greater import when considered according to the principal age periods. Let us first study all of the causes of maternal mortality taken together.

TABLE 124.

MORTALITY FROM PUERPERAL DISEASES AND CONDITIONS. WHITE AND COLORED FEMALES.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years, 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	White Females.	Colored Females.
All ages—15 to 44 years	66.1	82.3
15 to 19	24.3	93.4
20 to 24	72.1	100.7
25 to 34	93.0	88.3
35 to 44	62.2	56.7

Considering white women alone, the least death rate for all diseases and conditions incidental to childbirth was registered in the age period 15 to 19 years, namely 24.3 per 100,000. The rate rises rapidly to a maximum of 93.0 in the age period 25 to 34 years and then declines to 62.2 for the ten year period 35 to 44 years. Among colored females, however, we observed markedly different age characteristics of maternal mortality. The rate of mortality among colored females between 15 and 19 years was 93.4 per 100,000, the same rate, practically, as was observed in the period of maximum incidence, 25 to 34 years, among white females. From this high and damaging rate in the fourth quinquennium of life, the rate of maternal mortality among colored females rises to a figure of more than 100 per 100,000 exposed between 20 and 24 years and declines to a rate of 88.3 per 100,000 exposed in the age period 25 to 34 years. It is of singular interest to observe that whereas the colored female rate for maternal mortality is practically four times that of white females for the age period 15 to 19 years and practically one-third greater than the rate of white females between 20 to 24 years, for the ages after 25 years and up to 44 years, the mortality rates of colored females for all puerperal diseases and conditions combined are significantly lower than the rates for white females.

The table on page 200 shows the death rates per 100,000 women exposed in each of the color groups in this study, according to age periods.

These data suggest rather than answer inquiry. They call for a further display of obstetrical statistics to show the number of births to white and colored women at the several age periods of life and in relation to these data, the deaths from the various diseases and conditions associated with childbearing. Is the high death rate from puerperal diseases among young colored females due primarily to a very high birthrate or to improper care of parturient colored women in the early ages of adult life? Has the factor of illegitimacy had an effect upon the high mortality of colored mothers? These and other questions could be readily answered by a further display of birth and mortality data.

PUERPERAL SEPTICEMIA.

We may now consider the facts for each of the principal puerperal diseases in relation to age period. Puerperal septicemia, for white women, shows its highest mortality rate between 25 and 34 years, and its least rate between 15 and 19 years. Among colored women, there is an almost uniform and very high rate between 15 and 24 years with only a slight decline during the period 25 to 34 years. For the age group 35 to 44 years, the rates for white and colored women for puerperal septicemia are practically the same. The outstanding feature of mortality from puerperal septicemia therefore is the gradually rising rate among white females to the maximum in the age period 25 to 34 years and the very high and practically stationary rate for colored females for nearly twenty years of life between the ages 15 and 35. In the age period 15 to 19 years, puerperal septicemia shows a rate very nearly four and a half times as high among colored as among white women, although at the older ages the rates for the two races approximate each other. These facts are shown in Table 125 following:

TABLE 125.

MORTALITY FROM PUERPERAL SEPTICEMIA. WHITE AND COLORED FEMALES.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years, 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	White Females.	Colored Females.
All ages—15 to 44 years	27.9	38.5
15 to 19	10.7	46.3
20 to 24	32.8	49.4
25 to 34	40.7	42.5
35 to 44	21.9	22.2

PUERPERAL ALBUMINURIA AND CONVULSIONS.

A somewhat similar relation is also to be noted with reference to the facts for puerperal albuminuria and convulsions, under which title-heading deaths from puerperal nephritis and puerperal uremia are also counted. Among white women, the rate is lowest between the ages 15 and 19. The rate rises rapidly to its maximum, 22.6. This remains stationary between 20 and 35 years of age. Colored females show the maximum rate in the first age period under observation, 15 to 19 years, namely, 36.9 per 100,000, with a gradual decline to a minimum at the latest age period, 35 to 44 years, 13.0. It should be noted that, in the age period 15 to 19 years, colored females show a death rate for this cause nearly four times that for white females. Table 126 gives the facts for puerperal albuminuria and convulsions:

TABLE 126.

MORTALITY FROM PUERPERAL ALBUMINURIA AND CONVULSIONS. WHITE AND COLORED FEMALES.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years, 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	White Females.	Colored Females.
All ages—15 to 44 years	17.8	19.6
15 to 19	9.5	36.9
20 to 24	22.6	23.0
25 to 34	22.6	15.7
35 to 44	14.9	13.0

ACCIDENTS OF PREGNANCY.

Many conditions are included under this head the more important of which are abortions, accidental and self induced, premature birth, and extra uterine or tubal gestation. The death rate among white women is comparatively low until age 25 is reached. The maximum rate, 8.7 per 100,000 is found in the age period 25 to 34 years. The rate declines appreciably thereafter. Among colored women, however, it is uniformly higher at every age than among white women but this is especially marked at the ages under 25. Between 20 and 25 years the death rate (10.3) is more than twice the white rate. The figure declines somewhat between the ages 25 and 34 and more markedly between 35 and 44 years.

It is a matter of some interest that a very large proportion of these fatal cases are the direct result of attempts at abortion. In spite of the many efforts to cloak this condition, we have record of 67 such fatal cases in the Industrial mortality experience of 1917 alone. Many more cases certainly occurred but were not reported. The facts would appear to indicate a wide prevalence of this dangerous and criminal practice. Our data comparing the two color or race classes according to age periods are shown below:

TABLE 127.

MORTALITY FROM ACCIDENTS OF PREGNANCY. WHITE AND COLORED FEMALES.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years, 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	White Females.	Colored Females.
All ages—15 to 44 years............	5.6	7.9
15 to 19......................	1.3	2.1
20 to 24......................	4.7	10.3
25 to 34......................	8.7	9.9
35 to 44......................	6.0	7.0

PUERPERAL HEMORRHAGE.

The deaths under this title include those reported from *placenta previa* and retained membranes provided there is no evidence of septicemia as a complication. The mortality rate is least at the youngest ages. Among white women, the rate reaches its maximum at the oldest ages, i. e., 35 to 44 years, when it is 8.1 per

100,000. Among colored women the highest rate is found between 25 and 34 years. It is an interesting fact previously observed by obstetricians that colored women at the older ages of the child-bearing period suffer from puerperal hemorrhage much less frequently than do white women. Table 128 gives the facts for puerperal hemorrhage:

TABLE 128.

MORTALITY FROM PUERPERAL HEMORRHAGE. WHITE AND COLORED FEMALES.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years, 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	White Females.	Colored Females.
All ages—15 to 44 years	5.3	5.1
15 to 19	.8	.9
20 to 24	3.3	6.1
25 to 34	7.5	6.4
35 to 44	8.1	5.1

Other Accidents of Labor.

This title covers such deaths as are due to breech presentation, Caesarian section, and forceps operations and those attributed to dystocia, "injury at birth" and to "childbirth" or "confinement," with no further description. In the period 15 to 19 years, the first age period for which we have figures for these causes, among colored females the rate was five times that of white females, the figures being 6.7 and 1.4 per 100,000 living, respectively. Thereafter, the rates for the two races are not so divergent; in fact, after age 25 they are nearly identical. The maximum rate among white women is found in the age period 25 to 34 years when it is 9.4 per 100,000 and the maximum among colored women in the earlier age group 20 to 24 years, when the rate is 10.8. The data for these "other accidents of labor" are displayed in Table 129 on the next page.

Comparison of Insurance data, 1911 to 1916, with Population Data, 1910 to 1915.

The above facts relate to a large group of female Industrial policyholders. For purposes of comparison we may turn profitably to the figures for women in the expanding Registration Area of

TABLE 129.

MORTALITY FROM "OTHER ACCIDENTS OF LABOR." WHITE AND COLORED FEMALES.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years, 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	White Females.	Colored Females.
All ages—15 to 44 years	6.6	9.0
15 to 19	1.4	6.7
20 to 24	6.1	10.8
25 to 34	9.4	10.3
35 to 44	7.8	7.3

the United States. This is, in fact, the largest group in the general population of the United States for whom death rates may be prepared from the published data now available. A number of limitations, however, should be pointed out which interfere somewhat with the complete comparability of the data for insured women with those for the general population. The figures for the expanding Registration Area cover the six-year period, 1910 to 1915; the Metropolitan figures are for the six-year period, 1911 to 1916. The population of the Registration Area includes a small proportion of colored in addition to the white, whereas the insurance figures are for each of the two races taken separately. For the comparison, the figures for white insured women alone will be used. There are also differences in the geographical areas covered by the two groups. The Registration Area still excludes most of the southern and a number of western states; the Metropolitan policyholders are represented in nearly all of these states. It is clear nevertheless that these several differences are not sufficiently important to vitiate the comparisons of the mortality rates which we shall make.

In the six-year period 1910 to 1915, there were 57,012 puerperal deaths recorded among women in the Registration Area, ages 15 to 44 years. This corresponded to a death rate of 63.1 per 100,000 exposed at these ages.* The rate is therefore somewhat less than that for the insured women which was 66.1. The slight excess in the rate of mortality from diseases and conditions connected with maternity among insured women should not be interpreted too closely as an indication of worse conditions respecting childbirth among the wage earning element of the population, in view of the higher birth rate which prevails among the policyholders than among the population at large and for other reasons. As was the case among the insured women, the most important single items included in this mortality study of the general population are puerperal septicemia and puerperal albuminuria; the former being responsible for 44.4 per cent. and the latter for 23.9 per cent. of all the puerperal deaths. Together, these two conditions are responsible for 68.3 per cent. of the puerperal deaths; among the insured white women they accounted for 69.1 per cent. The accidents of pregnancy occurred in 9.3 per cent. of the cases; among insured white women they occurred in 8.5 per cent. The similarity in the two sets of figures is marked indeed and serves to confirm the general reliability of the returns in the two series.

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* The aggregate number of years of life of women ages 15 to 44 in the Registration Area exposed during the six year period 1910 to 1915 inclusive was estimated at 90,301,312, from data furnished by the Bureau of the Census and by the Prudential Insurance Company of America.

Comparative Age Characteristics of Maternal Mortality.

The data for the puerperal diseases and conditions in the two series are also very similar when studied by age period. Considering first all the puerperal causes combined, we find that the death rates reach a maximum in both groups in the age period 25 to 34 years. The mortality among insured women is lower between ages 15 to 19 years by 10 per cent. In the age group 20 to 24 years and in the age periods thereafter up to 44 years of age, maternal mortality among insured white women is from five to ten per cent. higher than among the female general population.

For puerperal septicemia, the figures are slightly more favorable for the insured women. Thus, between the ages 15 to 19, insured white women show a death rate from puerperal septicemia which is only 83 per cent. of the rate among women in the general population. In the period 20 to 24 years the advantage in favor of the insured women is close to 5 per cent. of the population rate. Between 25 and 34 years, the rate for the insured women shows an excess of nearly 7 per cent. In the last period 35 to 44 years, the death rate is practically the same for the two groups.

The figures for puerperal albuminuria and convulsions are different in several respects from those for puerperal septicemia, the rates being on the whole more favorable for the women in the general population than for the industrial group. Virtually the same mortality rates are observed in the two experiences at ages 15 to 19 years but thereafter, mortality of the insured is considerably higher than for women in the Registration Area. It is 25 per cent. higher at the age period 25 to 34.

TABLE 130.

MORTALITY FROM PUERPERAL DISEASES AND CONDITIONS.

Death Rates per 100,000 Women Exposed. Classified by Age Periods between 15 and 44 Years. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Total-Puerperal State.			Puerperal Septicemia.			Puerperal Albuminuria.		
	M. L. I. Co. (White).	U. S. Reg. Area.	P. C., M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	P. C., M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	Reg. Area.	P. C., M. L. I. Co. of Reg. Area.
All ages—15 to 44 years.	66.1	63.1	104.8	27.9	28.1	99.3	17.8	15.1	117.9
15 to 19...	24.3	27.0	90.0	10.7	12.9	82.9	9.5	9.6	99.0
20 to 24...	72.1	68.9	104.6	32.8	34.4	95.3	22.6	18.3	123.5
25 to 34...	93.0	84.2	110.5	40.7	38.1	106.8	22.6	18.1	124.9
35 to 44...	62.2	58.4	106.5	21.9	21.7	100.9	14.9	12.9	115.5

Table 130 presents the essential rates for the two series by age period not only for the total puerperal state but also for the two most important single conditions in this disease group.

The rates for the other puerperal conditions are comparatively low in both groups and do not justify any extended comparisons between the insured and the general populations.

Relative Improvement in Maternal Mortality among Insured Women and in the General Population.

If the composite death rate among insured white women appears to be somewhat higher than that for women in the population generally it should also be noted that this difference is being progressively overcome. Thus, in 1911, a death rate of 70.1 per 100,000 insured white females ages 15 to 44 years was recorded and in 1916, a rate of 62.6 per 100,000. This represents a decline of 10.7 per cent. in the rate of maternal mortality in the insured group. When we compare the 1910 rate among females in the general population of the Registration Area, 63.4, with the 1915 rate, 61.6, we find a decline of only 2.8 per cent. in maternal mortality. In 1911, the rate among the insured women was 9 per cent. in excess of the population rate; in 1915, this excess was reduced to only 3 per cent. A comparison of the two series of rates annually from 1911 to 1915, the latest year for which these figures are available at this time for the Registration Area by age, is shown in the following table:

TABLE 131.

MORTALITY FROM PUERPERAL DISEASES AND CONDITIONS.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company, Industrial Department, and of Expanding Registration Area of the United States.

Year.	Females, Ages 15 to 44 Years.		
	Death Rates per 100,000 Women Exposed.		Ratio, Insurance to Population, Reg. Area Rates.
	Insured White Women.	Women in Population, Reg. Area.	
1916..........	62.6	*	*
1915..........	63.3	61.6	1.03
1914..........	68.6	64.4	1.07
1913..........	70.5	64.1	1.10
1912..........	62.4	60.7	1.03
1911..........	70.1	64.5	1.09
1910..........	*	63.4	*

* Data unavailable.

There is, therefore, a general tendency for the rate of total maternal mortality among insured white females to approximate that of females in the general population.

A greater relative reduction in mortality is also observed for puerperal septicemia among insured white females than among females in the general population. Thus, in 1911 among insured white females, aged 15 to 44 years, we recorded a death rate from this condition of 30.6 per 100,000 and in 1916 a rate of 25.3 per 100,000. This represents a decline of 17.3 per cent. In the experience of the Registration Area there was a decline in the six years between 1910 and 1915 from 29.2 to 25.4 per 100,000 or 13.0

per cent. In 1915, the rate of mortality from puerperal septicemia, the chief cause of death of women in the maternal state, was actually lower among insured white females than among females in the general population. The following table gives the chief comparative facts for puerperal septicemia in both experiences:

TABLE 132.

Mortality from Puerperal Septicemia.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company, Industrial Department, and of Expanding Registration Area of the United States.

Year.	Females, Ages 15 to 44 Years.		
	Death Rate per 100,000 Women Exposed.		Ratio, Insurance to Population, Reg. Area Rates.
	Insured White Women.	Women in Population, Reg. Area.	
1916	25.3	*	*
1915	24.8	25.4	.98
1914	28.6	28.7	1.00
1913	31.9	29.2	1.09
1912	26.9	26.3	1.02
1911	30.6	29.9	1.02
1910	*	29.2	*

* Data unavailable.

We have found from our previous inquiry that the conditions classified as puerperal albuminuria and convulsions are second in importance among the total causes of maternal mortality. For this cause of death we have recorded a steadily rising rate with but one exception year by year between 1910 and 1915 for women aged 15 to 44 years in the experience of the Registration Area and a fluctuating rate among white females in the insurance experience.

The table on page 210 presents a comparison of the data available for these conditions among white insured women and among women in the population between the ages of 15 and 44 years.

This is a discouraging picture in view of the well established opinion among obstetricians that the largest part of the mortality from these conditions may be prevented through adequate medical and nursing service carried on during the period of pregnancy. The figures clearly indicate a fruitful field for the extension of such service to women. This, in fact, is the reason for the general extension of the Company's nursing service to women during pregnancy. Through such service the nephritic and hepatic cases will undoubtedly be brought earlier under medical observation and many cases which would under ordinary circumstances terminate fatally as puerperal albuminuria and convulsions will thus be carried safely through their confinement.

TABLE 133.

MORTALITY FROM PUERPERAL ALBUMINURIA AND CONVULSIONS.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company, Industrial Department, and of Expanding Registration Area of the United States.

Year.	Females, Ages 15 to 44 Years.		
	Death Rates, per 100,000 Women Exposed		Ratio of Insurance to Population, Reg. Area Rates.
	Insured White Women.	Women in Population, Reg. Area.	
1916	18.3	*	*
1915	16.9	16.1	1.05
1914	18.0	16.1	1.12
1913	19.0	15.4	1.23
1912	17.3	14.6	1.18
1911	17.1	14.3	1.20
1910	*	13.7	*

* Data unavailable.

Accidents of Labor.

The registered mortality from these causes of death for the group of white insured females, shows a general and substantial downward trend from 1911 to 1916. The Registration Area mortality rates show the peculiar phenomenon of a steady downward trend up to 1913 and a gradual rise in the rate between 1913 and 1915. It is not possible to indicate how much of the general decline in mortality from this cause among insured white females is due to the work of the Visiting Nurse Service. Under the rules of that service, the work of the visiting nurse is confined very largely to after-care of mothers after childbirth. It is believed, however, that the amount of prenatal work already extended to insured women in the Industrial Department tends in a measure to correct during pregnancy the remediable mechanical difficulties which may be encountered during labor. The work of the public health nurse for pregnant women would necessarily be in the direction of insuring proper medical care for women in childbirth. We show the comparative mortality facts for accidents of labor below:

TABLE 134.

MORTALITY FROM "OTHER ACCIDENTS OF LABOR."

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company, Industrial Department, and of Expanding Registration Area of the United States.

Year.	Females, Ages 15 to 44 Years.		
	Death Rates per 100,000 Women Exposed.		Ratio of Insurance to Population, Reg. Area Rates.
	Insured White Women.	Women in Population, Reg. Area.	
1916	6.2	*	*
1915	6.1	5.9	1.03
1914	6.2	5.6	1.11
1913	7.1	5.4	1.31
1912	6.1	5.6	1.09
1911	8.2	6.2	1.32
1910	*	6.1	*

* Data unavailable.

Puerperal Hemorrhage.

It has been assumed in obstetrical literature generally that mortality among women in the wage earning groups of the population from puerperal hemorrhage was more common than in general unselected populations. Our data show, however, a lower death rate except in one year, 1914, from this cause among white insured females in the families of wage earners than among females in the general population of the Registration Area of the United States. The figures indicate an uncertain tendency in the mortality of both groups. Table 135 on page 212 gives a view of the data available.

Accidents of Pregnancy.

Comparative mortality from this cause of death shows higher death rates in 1913, 1914 and 1915 among insured white females than among females in the general population. There seems to be, in general, higher mortality from the accidents of pregnancy among white females in wage earners' families than among females

TABLE 135.

MORTALITY FROM PUERPERAL HEMORRHAGE.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company, Industrial Department, and of Expanding Registration Area of the United States.

Year.	Females, Ages 15 to 44 Years.		
	Death Rate per 100,000 Women Exposed.		Ratio of Insurance to Population, Reg. Area Rates.
	Insured White Women.	Women in Population Reg. Area.	
1916	5.2	*	*
1915	5.7	6.0	.95
1914	6.2	6.1	1.02
1913	4.6	6.3	.73
1912	4.9	6.2	.79
1911	5.3	5.8	.91
1910	*	5.6	*

* Data unavailable.

in the general population. Such data as we have available are given in the following table:

TABLE 136.

MORTALITY FROM ACCIDENTS OF PREGNANCY.

Death Rates per 100,000 Women Exposed, Ages 15 to 44 Years. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company, Industrial Department, and of Expanding Registration Area of the United States.

Year.	Females, Ages 15 to 44 Years.		
	Death Rates per 100,000 Women Exposed.		Ratio of Insurance to Population Reg. Area Rates.
	Insured White Women.	Women in Population, Reg. Area.	
1916	4.6	*	*
1915	6.1	5.7	1.07
1914	6.2	5.5	1.13
1913	5.9	5.5	1.07
1912	4.8	5.8	.83
1911	6.1	6.2	.98
1910	*	6.6	*

* Data unavailable.

PREVENTION OF MATERNAL MORTALITY.

The figures presented in the above tables disclose a large and profitable field for intensive public health work. It is no light matter that with the present development of sanitary science and of preventive medicine there should still be one fatal termination in from every 100 to 200 cases of pregnancy and childbirth. Yet this is the situation in a number of large centers of population for which adequate data are available. As we have pointed out, the puerperal conditions in their entirety represent a hazard to the life of women, which is second only to that from pulmonary tuberculosis at these childbearing ages. The serious social losses resulting from the many deaths of women at these ages are now more thoroughly realized. Deaths of wives and mothers mean, in most instances, the destruction of family ties with their incalculable consequences to the community. These facts explain the recent efforts for the care of women in pregnancy. Prenatal work is fast becoming an integral part of the routine of preventive work of the departments of health of many American cities. In some communities, like Boston and New York, private agencies cooperating with the visiting nurse associations, have specialized in the nursing of women throughout the period of pregnancy, confinement and after-care. Thousands of cases are being cared for each year in prenatal clinics and through follow-up and instructive visits by specialized nurses. In Boston, the work has been brought to the point where definite life saving of both mother and child on a large scale already appears evident. Other communities will undoubtedly show similar results as their work becomes better established.

It is among insured women that the best results of a policy of life conservation have been obtained. From the very beginning, in 1909, the nursing service of the Metropolitan Life Insurance Company considered the care of women after childbirth a major function of the service and this has been the policy of the Company since. In 1916, out of a total of 160,843 female policyholders visited during illness 41,572 or 25.8 per cent. were cases resulting from diseases or conditions of the puerperal state. While the majority of these cases involve care of women after normal childbirth, there are many cases each year of the abnormal and acute conditions requiring intensive nursing care. Thus, in 1916 there were 967 cases of puerperal septicemia, 308 cases of albuminuria and convulsions and

3,469 cases of abortion and miscarriage. In all, a total of 243,738 nursing visits were made in 1916 to these women either before or after their confinement.

It is not surprising, therefore, that we should find a very favorable course in the mortality of these insured women from nearly all the conditions incidental to childbearing. In the six year period between 1911 and 1916, the death rate among white female policyholders* from these causes fell 10.7 per cent., the figures for 1911 and 1916 being 70.1 and 62.6 per 100,000 respectively. The per cent. reduction is greater in this period for colored women, namely, 20.4 per cent. The decline in mortality from puerperal septicemia is especially marked among white women in this period, being 17.3 per cent. With the exception of accidents of pregnancy, the saving in mortality between 1911 and 1916 is greater among insured women than among women in the population at large between 1910 and 1915 as represented in the Registration Area data. These comparisons, therefore, serve as a strong endorsement of the Company's programme for the care of parturient women through public health nursing.

* Ages 15 to 44 years.

CHAPTER XIV.

We shall now depart from the practice of discussing in a separate chapter the mortality statistics of individual diseases. In each of Chapters XIV, XV and XVI we shall group a number of causes of death, otherwise unrelated, into chapters of convenient length, and shall consider the respective diseases in the order of their decreasing numerical importance. This seems advisable because the diseases and conditions thus discussed are not of sufficient numerical importance to justify the extensive treatment accorded to those in the preceding chapters. This grouping must not be considered as an expression of any relation between the diseases; our arrangement is determined only by a consideration of the size of the chapters. The present chapter will deal with the following diseases:

1. Diseases of the Arteries, Atheroma, Aneurism, etc.
2. Typhoid Fever.
3. Cirrhosis of the Liver.
4. Influenza.
5. Diabetes.

DISEASES OF THE ARTERIES, ATHEROMA, ANEURISM, ETC.

The deaths registered under this title include those certified as due to arteriosclerosis, and to other arterial diseases such as fatty degeneration of the arterial wall (atheroma) and aneurism of various types. The larger proportion of the 9,142 deaths under this title, however, relate to general arteriosclerosis. In all, 1.4 per cent. of the deaths in the total experience are included.

Reports on mortality from arteriosclerosis must be accepted with caution because of inherent defects in the statistics. It is only in recent years that physicians have paid serious attention, in preparing death certificates, to the arterial diseases as causes of death. Increasing popular interest in these diseases has carried with it, at the same time, neglect on the part of physicians to specify, in many cases, the associated impairments of the heart and kidney, which, if they were stated as they should be, would result in the assignment of the cause of death to other than arterial disease. There is still, therefore, considerable uncertainty as to the full significance of the figures on arterial disease mortality submitted in this report.

The following table shows the death rates from the arterial diseases, arranged by sex, color and age:

TABLE 137.

MORTALITY FROM DISEASES OF THE ARTERIES, ATHEROMA, ANEURISM, ETC.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over...........	17.0	18.8	15.1	21.3	15.8
1 to 24.....	.1	.1	†	.3	.4
25 to 34.....	1.6	1.4	.6	7.2	2.9
35 to 44.....	5.8	6.6	1.7	25.8	8.1
45 to 54.....	16.0	21.0	8.7	38.8	24.1
55 to 64.....	66.0	87.8	50.3	79.8	67.8
65 to 74.....	298.7	392.7	249.8	287.3	210.2
75 and over..	888.8	1089.5	804.5	686.0	653.3

† Less than .05 per 100,000 exposed.

We find, as in a number of the other degenerative diseases, a marked difference in the two races. Colored males, especially at the earlier ages of adult life, show much higher mortality rates than do white males. Colored females, likewise, up to 64 years, show excessive rates from this cause. After age 55, there is a reversal of this condition and the rates for white lives exceed those for the colored. Males show higher rates than females in each race.

A comparison of the death rates prevailing among the insured lives with those in the population of the Registration Area shows a marked excess in the former group during the significant age periods. Thus, between 65 and 74, white insured males have a rate nearly 68 per cent. in excess of that of the male population, and insured females a rate 63 per cent. in excess of that for females in the Registration Area.

The following table gives a few of the comparative facts in the two experiences:

TABLE 138.

MORTALITY FROM DISEASES OF THE ARTERIES, ATHEROMA, ANEURISM, ETC.

Death Rates per 100,000 Persons Exposed. Classified by Sex and Age Periods. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
25 to 34....	1.4	1.7	82.4	.6	.7	85.7
35 to 44....	6.6	5.8	113.8	1.7	2.2	77.3
45 to 54....	21.0	17.6	119.3	8.7	8.2	106.1
55 to 64....	87.8	61.3	143.2	50.3	35.4	142.1
65 to 74....	392.7	234.1	167.7	249.8	153.3	162.9
75 and over	1089.5	983.4	110.8	804.5	743.7	108.2

As already pointed out, it is very doubtful whether we have conclusive figures as to the true incidence of these diseases at the present time. The trend of the death rates between 1911 and 1916 may, therefore, be no real indication of the general tendency of the disease during the period. The uncertainties of diagnosis and certification are still too dominant to warrant drawing any far reaching conclusions. The sudden decline in the death rate both among white females and white males subsequent to 1914 was clearly the result of changed office practise in assigning cases where arteriosclerosis was reported jointly with a number of other conditions such as bronchopneumonia, chronic bronchitis, endocarditis, and many other causes. Following the practise of the Census Bureau, such cases were, after 1914, assigned not to arteriosclerosis but to the accompanying condition. Among insured colored persons, there is shown a fairly marked increase in the rates from year to year despite the influence of this factor. The figures for the population of the Registration Area are different in that they show a condition of increased incidence from year to year.

The following table shows the figures for the individual years between 1911 and 1916 differentiated by color and sex:

TABLE 139.

MORTALITY FROM DISEASES OF THE ARTERIES, ATHEROMA, ANEURISM, ETC., CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	17.0	18.8	15.1	21.3	15.8
1916.......	15.2	16.5	13.2	21.8	16.9
1915.......	14.4	14.5	13.2	21.5	16.9
1914.......	18.9	21.2	17.2	21.0	16.2
1913.......	19.0	21.0	17.2	23.1	15.7
1912.......	17.6	20.5	15.3	20.5	15.0
1911.......	17.4	20.1	15.3	19.9	13.9

TYPHOID FEVER.

Typhoid fever, according to Sir William Osler, "is everywhere an index of the sanitary intelligence of the community." It is encouraging, with this statement in mind, to find that typhoid fever shows during the six year period under investigation a very large percentage of decrease in its incidence. It is still a cause of much concern, however, in its wide distribution and in the considerable number of deaths that annually result from it. A wide gulf still separates sanitary knowledge from sanitary accomplishment over a large area of the United States. It will be possible, through the examination of the data of this experience, to determine the comparative incidence of the disease in the two color or race groups constituting the American working population. This will throw light on the different sanitary surroundings of the white and colored people respectively. Of perhaps equal interest to the medical profession will be the variable incidence of mortality from the disease by sex, and in the several main age periods of life.

Typhoid fever caused 9,011 deaths during the period between 1911 and 1916. The rate of mortality was 16.8 per 100,000 living, the disease accounting for 1.4 per cent. of all the deaths.

The following table will be the basis of our discussion of the incidence of the disease in the two race and sex groups according to age period:

TABLE 140.

MORTALITY FROM TYPHOID FEVER, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	16.8	15.8	12.8	35.6	34.2
1 to 4	12.7	10.8	11.6	28.8	35.5
5 to 9	12.9	8.6	11.5	41.6	44.8
10 to 14	16.2	12.4	13.4	35.4	58.4
15 to 19	24.6	20.8	20.0	59.5	60.0
20 to 24	23.4	24.3	17.7	46.7	38.8
25 to 34	18.5	20.7	13.2	29.3	28.8
35 to 44	15.1	17.1	10.9	26.4	20.7
45 to 54	13.1	15.1	8.7	28.7	20.2
55 to 64	12.3	15.2	7.5	27.6	22.0
65 to 74	11.8	11.6	7.9	48.4	20.0
75 and over	10.6	9.9	9.2	—	36.3

It is evident that typhoid fever death rates show very pronounced differences for the two races. Those for the colored persons are greatly in excess of those for whites. This holds true for every year of the six year period. The rate for colored males (35.6) is considerably more than double that for white males (15.8); that for colored females (34.2) is almost three times that for white females (12.8). These differences between the races are even more marked when we consider certain of the age periods, especially the years of childhood. Thus, between the ages of five and nine, the colored children show rates between four and five times as high as those for white children at the same ages. It is impossible from the above data to say definitely to what extent these race differences indicate a varying degree of resistance to the disease. A much more plausible explanation is that the great body of the colored policyholders reside in those areas of the country and in certain definite localities of cities where typhoid fever is much more prevalent than in areas inhabited by the white policyholders. It is possible, of course, that the factor of resistance plays a part also, but this can be determined only by future research which will take into consideration all of the local sanitary surroundings of the two races.

The variations in the incidence of typhoid fever mortality in the two sexes are less pronounced, but are, nevertheless, in evidence. Taking all ages together, males show higher rates than females, the differences being more marked among the whites than among the colored. On further analysis, we find that this difference results from a considerably higher death rate among males beginning with the age period 20 to 24, the male excess increasing with advancing age. In the earlier ages, that is, under age 15, there is a pronounced excess in the rate of females of both races.

Reference has already been made to the varying incidence by age in this condition. We may summarize the facts as follows: the highest mortality occurs in the age group 15 to 19 years, although among white males, this maximum figure is attained in the next age period, 20 to 24 years.

TABLE 141.

MORTALITY FROM TYPHOID FEVER.

Death Rates per 100,000 Persons Exposed. Classified by Sex and Age Periods. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over....	15.8	20.7	76.3	12.8	14.7	87.1
1 to 4.....	10.8	10.1	106.9	11.6	10.0	116.0
5 to 9.....	8.6	11.0	78.2	11.5	12.3	93.5
10 to 14....	12.4	12.7	97.6	13.4	15.7	85.4
15 to 19....	20.8	26.6	78.2	20.0	22.9	87.3
20 to 24....	24.3	34.2	71.1	17.7	21.0	84.3
25 to 34....	20.7	27.5	75.3	13.2	15.2	86.8
35 to 44....	17.1	21.3	80.3	10.9	12.4	87.9
45 to 54....	15.1	18.3	82.5	8.7	11.8	73.7
55 to 64....	15.2	18.0	84.4	7.5	11.3	66.4
65 to 74....	11.6	15.2	76.3	7.9	12.1	65.3
75 and over	9.9	10.3	96.1	9.2	10.0	92.0

A comparison of the above data with those for the population of the Registration Area of the United States confirms the several important relations which have been described. We find again a higher incidence of the condition among males than among females at all ages combined, and more especially in the ages after early adolescence. We find also that the periods of maximum mortality are in exact agreement in the two experiences. Among males in the Registration Area for example, the highest death rate for any period is that for the age group 20 to 24 years and, for females, in the period 15 to 19 years. The same general contour of the curves of mortality by age period for each of the two sexes is to be noted, that is, a maximum mortality in the period of early adult life tapering down to a minimum at the two extremes of life.

The table on page 220 presents a comparison of the death rate by age and sex for insured lives with corresponding figures for the population of the Registration Area.

The general correspondence between the two sets of figures is very marked and yet there are important differences to which reference should be made. Beginning with the period 5 to 9 years, the rates are uniformly higher for the population of the Registration Area, the most marked difference being found in the age period 20 to 24 years. For each sex there is a decided advantage, apparently, in favor of the insured white lives as compared with the general population. It is undoubtedly true that the Registration Area figures are somewhat higher because of their inclusion of a small proportion of colored lives, but perhaps a more significant factor is the fact that a large proportion of the population of the Registration Area is rural in character whereas, the insured lives are almost entirely limited to cities and their immediate environment where typhoid fever rates are nearly always lower than in the country. On the other hand, it should not be overlooked that a considerable proportion of the policyholders of the Company reside in certain of the non-registration States of the country where typhoid fever is more prevalent than in those States which constitute the Registration Area. All things considered, typhoid fever is not as favorable a condition for purposes of comparison as are some others. The figures submitted do, however, confirm the essential relations of the disease in both groups and serve to show that wage earners and their families do not suffer unduly from its effects.

The decreasing death rate from typhoid fever is one of the very gratifying features of this mortality experience. There was a continuous and marked decrease in the mortality rate year by year, beginning with 1911 and closing with 1915. A slight increase is in evidence for 1916 as compared with 1915, but the significance of this cannot be evaluated at this time. The following table gives the figures for each of the six years in the period by sex and by color:

TABLE 142.

MORTALITY FROM TYPHOID FEVER, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916.......	16.8	15.8	12.8	35.6	34.2
1916.......	13.0	12.1	10.1	27.1	28.0
1915.......	12.9	12.1	9.8	31.8	25.4
1914..	16.1	15.5	12.1	35.5	31.5
1913.......	18.4	17.7	14.2	38.0	35.5
1912.......	19.1	17.9	14.6	37.5	40.5
1911.......	22.8	21.2	17.7	45.8	46.5

A comparison of the above figures with those for the Registration Area shows a number of coincidences. The rate for 1911 in the Registration Area was also the highest for the quinquennium 1911 to 1916; that for 1915 was the lowest for the same period. Again, a slight rise is shown for 1916 over 1915 in the population data. In other words, the fluctuations in the insurance experience serve here as a very sensitive index of the fluctuations in the general population experience.

Mortality from Sequelae of Typhoid Fever.

Before closing this section, it will be well to refer to one additional feature of typhoid mortality which the data under consideration make possible, namely the sequelae of typhoid fever. A study made in 1914* of a group of more than 1,000 persons who had recovered from an attack of typhoid fever in 1911 showed clearly that in the three year period following the disease the mortality was slightly more than double what might be normally expected from persons in the same age and sex classes. It was found that during the first year after recovery close to three times the expected number of deaths occurred (284 per cent). During the second year, the ratio of actual to expected mortality was 217 per cent., and, during the third year, the ratio was only 80 per cent. This would indicate that the effect of an attack of typhoid fever continues over a period of two years, during which time there is a marked increase in the mortality from certain conditions which apparently are induced by typhoid fever. These are tuberculosis, diseases of the heart, and diseases of the kidney, which all appear in exaggerated proportions as causes of death in the group of survivors.

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* Dublin, Louis I., "Typhoid Fever and Its Sequelae," Metropolitan Life Insurance Company, 1914.

In considering typhoid mortality, therefore, it is well to remember that, in addition to the death rate from the disease, there is also the added element of impairment which follows in the track of recovered cases, taking a toll of approximately double mortality during the period of from two to three years after "recovery" from typhoid fever. It is estimated that in the period from 1911 to 1916, when 9,011 deaths from typhoid fever occurred in the Industrial experience of the Metropolitan Life Insurance Company, an additional 3,600 deaths occurred among those who had been attacked by typhoid fever but who had recovered—evidently a significant addition to the mortality due to any cause of death.

Cirrhosis of the Liver.

Eight thousand and sixty-four (8,064) deaths of Metropolitan policyholders were recorded as due to cirrhosis of the liver during the six year period 1911 to 1916. The death rate was 15.0 per 100,000 exposed. Included under this title are deaths from alcoholic cirrhosis, but not those in which the disease is definitely reported as a sequela of syphilis. Alcoholism is recognized as the chief cause of cirrhosis of the liver. It must be clear, therefore, that a large number of cases of alcoholism are not reported in the published statistics where cirrhosis of the liver is registered as the cause of death. All statistics in any way related to mortality from alcoholism are still understatements.

Color, Sex and Age Incidence of Mortality from Cirrhosis of the Liver.

The death rate for white policyholders was higher than that for colored policyholders for each sex group. This applies to the four ten-year age periods of heaviest mortality from the disease extending from age 35 to age 75. After age 75, the rate for white males was also higher than for colored males, but, among females, the color relation was reversed. This may well be due to the unreliability of the data for colored females at this advanced age period of life. The following table presents the facts by color, sex and by age:

TABLE 143.

Mortality from Cirrhosis of the Liver, Classified by Color, Sex and by Age Period.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	15.0	20.7	10.6	18.8	9.6
1 to 19.....	.4	.4	.3	1.2	1.3
20 to 24.....	1.0	1.1	.4	3.3	2.4
25 to 34.....	6.7	9.8	4.1	10.7	5.3
35 to 44.....	24.4	39.9	16.5	28.6	11.1
45 to 54.....	48.8	87.8	29.0	47.6	22.2
55 to 64.....	66.8	114.8	40.6	73.8	27.7
65 to 74.....	98.6	145.7	71.3	111.9	64.6
75 and over..	102.8	124.8	91.2	82.3	99.8

The rates are also much higher for males than for females. This applies to both white and colored policyholders at all of the significant age periods. The mortality is low in early life. Beginning with the age period 25 to 34 years, the rate becomes important, and, after that, rises rapidly, reaching the maximum, for significant age groups, at the period of 65 to 74 years. Both white and colored males show a decrease in the death rate after age 75, while females of both races show significant increases in the rate. It is possible that these variations are accidental as the result of the small number of lives exposed at the advanced periods of life.

Comparison of Mortality from Cirrhosis of Liver among Insured Wage Earners 1911 to 1916 and among the Population of the Expanding Registration Area, 1910 to 1915.

Comparison with available data by sex and age for the expanding Registration Area shows that the mortality among insured white males exceeds very slightly that for the males of the general population (20.7 per 100,000 exposed as compared with 18.0 per 100,000 population). For the females, the corresponding rates are 10.6 and 8.9. In each experience, it will be noted that the mortality among males is about double that among females. As might be expected, the death rates for the lower age periods are not significant in either experience. It is not until age 35 is reached that cirrhosis of the liver becomes a serious factor in mortality. From that age on, the death rate for cirrhosis of the liver is very much higher among white insured men and women than it is in the Registration Area. At the age period 35 to 44 years, for males, the death rate for the policyholders is 39.9 as compared with 19.2 for males of the general population. For those 45 to 54 years of age, the corresponding rates are 87.8 and 44.1. While the excess is smaller in the three highest age groups, it is, nevertheless, very pronounced in each case. For the females, practically the same relations are in evidence, although the rates are lower. In each age period, there is found a markedly higher rate among the Industrial policyholders. It is believed that in the case of cirrhosis of the liver, as with many other diseases in which the death rates for the insured exceed those of the general population, the explanation is

TABLE 144.

MORTALITY FROM CIRRHOSIS OF THE LIVER.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Periods. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over....	20.7	18.0	115.0	10.6	8.9	119.1
1 to 19....	.4	.4	100.0	.3	.4	75.0
20 to 24....	1.1	.9	122.2	.4	.7	57.1
25 to 34....	9.8	5.3	184.9	4.1	3.0	136.7
35 to 44....	39.9	19.2	207.8	16.5	9.8	168.4
45 to 54....	87.8	44.1	199.1	29.0	19.5	148.7
55 to 64....	114.8	74.9	153.3	40.6	31.5	128.9
65 to 74....	145.7	104.7	139.2	71.3	53.9	132.3
75 and over	124.8	108.7	114.8	91.2	73.9	123.4

found in part in the different distribution of the exposure with reference to rural and urban residence. Examination of the general population mortality reports, year after year, shows that for this disease the urban mortality is in the neighborhood of 50 per cent. in excess of the rural. The fact that the insured exposure is almost entirely urban in character is undoubtedly an important element in their higher death rate. The special circumstances which give rise to a higher urban rate for this disease are at present unknown.

The table on page 225 presents a comparison of the death rates for cirrhosis of the liver by age and sex in the general population and among the Industrial policyholders.

Trend of the Death Rate from Cirrhosis of the Liver.

The highest mortality during the six year period was encountered in the year 1912 (16.7) while the lowest was for the year 1916 (13.6). There were no marked fluctuations in the mortality, although the trend in both the Metropolitan experience and that of the expanding Registration Area was downward.

INFLUENZA.

True epidemic influenza is a specific infectious disease. Several times within the last two decades of the nineteenth and in the second decade of the present century it has been epidemic or endemic in this country, notably in 1889, 1890 and in 1915 and 1916. From the statistical standpoint, however, it is still necessary to exercise great caution in considering this disease. The word "influenza" is a term which is very loosely used by physicians and in many cases in which it is given as the cause of death it is in error, the true cause being some other condition accompanied with respiratory symptoms. It is very necessary to bear this in mind in comparing the death rate for influenza for a period of years and in fact in evaluating the extent of the mortality from the condition at the present time. It should not be lost sight of, however, that the tendency to use the term correctly is becoming more and more marked as the years go on.

The 8,056 deaths which were ascribed to influenza during the period 1911 to 1916 were therefore an over-statement of the number, although it is impossible to determine the element of error. The death rate based on this number of deaths was 15.0 per 100,000 living. During the six year period the highest rate was for 1916 (23.8); the minimum rate was observed in the year 1914 (11.3). The incidence, therefore, more than doubled in a short span of two years, showing clearly the epidemic character of the disease. In the expanding Registration Area of the United States also, much the same condition prevailed. The mortality in 1916 reached a rate of 26.4 per 100,000, by far the highest rate in the history of the United States Registration Area and exceeding by 65 per cent. the rate for the year before. The disease was especially prevalent and virulent in various parts of the country during the latter part of 1915 and in the early months of 1916, which accounts for the marked increase shown in the death rates, both in the reports of the United States Census Bureau and in the Industrial experience of the Metropolitan.

The following table presents the data for each of the six years between 1911 and 1916 by color and sex:

TABLE 145.

MORTALITY FROM INFLUENZA, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	15.0	11.3	14.0	26.5	33.6
1916.......	23.8	18.7	24.2	34.9	44.1
1915.......	13.0	9.4	12.1	28.3	29.0
1914.......	11.3	8.3	10.7	20.6	25.8
1913.......	12.3	9.4	11.4	23.9	25.9
1912.......	12.3	8.9	10.0	25.5	35.8
1911.......	15.9	11.9	14.2	25.3	41.3

Influenza Mortality According to Color, Sex and Age.

The mortality from this disease is most prominent at the two extremes of life, especially at the older ages when very high death rates are attained. The lowest rates are observed between the ages 5 and 35 years. From age 35 onward the incidence rapidly increases, more than doubling with each successive age period.

The above facts with regard to age period are generally true for both sexes and both races. The death rate for colored policyholders is more than double that for white persons for each sex. This difference between the two race groups becomes very marked in some of the lower age periods, when the rate for the colored is more than three times that for the white.

Females show uniformly higher rates than males in both race groups. This is especially marked in the period of middle life and of old age when the death rates are highest. The following table presents the facts for influenza by color, sex and age period during the six year period:

TABLE 146.

MORTALITY FROM INFLUENZA, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over............	15.0	11.3	14.0	26.5	33.6
1 to 4......	13.1	12.6	11.8	28.8	20.3
5 to 9......	3.5	2.9	3.4	7.5	5.8
10 to 14.....	2.4	1.8	2.2	4.1	8.4
15 to 19.....	3.6	2.7	2.6	9.3	13.2
20 to 24.....	4.7	3.4	3.5	10.5	15.3
25 to 34.....	6.7	5.0	4.7	16.3	15.9
35 to 44.....	11.2	10.8	7.6	23.8	21.3
45 to 54.....	22.2	18.9	17.5	40.4	49.7
55 to 64.....	53.9	44.9	45.7	94.8	124.1
65 to 74.....	148.0	121.2	142.4	230.5	285.4
75 and over..	315.0	235.5	329.0	397.9	617.0

That very similar relations in the death rates by sex and age prevail in the general population of the United States is shown by the data for the expanding Registration Area, 1910 to 1915. It will not be necessary, however, because of the element of uncertainty in the rates for influenza to give the actual figures for the Registration Area. It should be noted nevertheless that the mortality rates from this condition are much higher among the white urban policyholders than in the population of the Registration Area for each sex and at virtually every age period.

DIABETES.

The data on diabetes in this experience of insured wage earners are, so far as we can determine, original in the literature of American vital statistics. In spite of the intense interest of the medical profession in the subject in recent years, little has been done so far to determine the extent to which the condition is responsible for mortality. The figures herein submitted are not only accurate measures of the incidence of the disease as a cause of death in general, but, what is perhaps more important, they give a picture of the history of the condition in relation to sex, color and age period. To the clinician and the laboratory student of the disease, the relations presented may well serve as a clue in directing further diabetes research. Another element of interest inherent in these figures is that, referring, as they do, to the industrial population, they may throw light on the probable effect of social and economic condition upon the incidence of diabetes. This is still a mooted question in the medical literature. There is a tendency in some quarters to regard the disease as more prevalent among the prosperous elements of the population. On the other hand, certain exciting causes inherent in the harsher conditions of life and work have been identified in the case-histories of diabetes mellitus. It will be important,

TABLE 147.

MORTALITY FROM DIABETES, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	14.4	10.8	18.5	9.5	11.4
1 to 4	1.8	1.9	1.9	—	1.9
5 to 9	1.7	1.6	1.8	2.3	.6
10 to 14	3.4	3.1	4.1	.3	2.5
15 to 19	4.0	4.5	4.0	2.6	1.5
20 to 24	4.0	5.0	3.7	3.3	.8
25 to 34	5.4	6.5	4.9	4.7	4.3
35 to 44	9.3	10.6	8.8	9.6	7.7
45 to 54	30.4	25.4	34.3	20.8	33.5
55 to 64	80.1	56.6	102.1	48.6	53.7
65 to 74	127.2	95.5	161.4	55.1	57.5
75 and over	134.9	102.1	158.2	109.8	108.9

therefore, to see later how the figures here presented compare in detail with those in the general population whose economic status is altogether more favorable. If the number of deaths in this experience (7,762) are not as many as for other conditions which have been discussed, it should be remembered that this number is by far the largest aggregation of cases of this disease which have as yet received extended statistical treatment.

The table on page 229 presents the death rates per 100,000 persons exposed with respect to color, sex and age period.

The death rate increases with age. Under 35 years, there is no very appreciable incidence of the condition. Between ages ten and fourteen, a rate of 3.4 deaths per 100,000 persons living is the first indication of a significant distribution in the population of the disease in its malignant form. Between 25 and 34 years, the rate, 5.4, accentuates the earlier finding. Beyond 35 years, there is a rapid rise in the slope of the curve for diabetes. The highest point is observed in the last age period, namely, 75 and over. But, even in the more significant age period of 65 to 74 years the rate is not far from its maximum. In fact, among white females, the maximum is reached in this period.

There is a lower death rate among colored persons at each of the age periods, and this is especially true of colored females as compared with white females. The difference in favor of colored lives becomes more important beyond age 55, when diabetes is an important condition. It should be noted also that diabetes has a very marked sex incidence, the rates beyond age 45 being for both white and colored women higher than for males of the corresponding race. There is only one exception and it is not a significant one. Prior to age 45, the condition is reversed. This suggests the interesting question whether the menopause may not have some influence in changing the sex ratio of diabetes mortality after 45 years of age.

Diabetes Mortality Among Insured Wage Earners and Among the General Population of the United States (Expanding Registration Area) Compared.

Among males, under 20 years of age, and, among females under 35 years of age, in this insurance experience, the diabetes death rates are, almost without exception, lower than the corresponding rates for the population in the Registration Area of the United

States. Beyond 20 years of age, however, there is an excess in the rate among insured white males which increases up to the period 35 to 44. Beyond this age, the excess declines to a point where the rates for the two groups are much the same. Among the females, there are significantly higher rates for insured women than for those in the general population. Beginning with the age period 45 to 54 years, the amount of excess varies somewhat from 25 to 30 per cent.

The following table presents a comparison for the disease in the two series, that is, the insured group and the general Registration Area population:

TABLE 148.

MORTALITY FROM DIABETES.

Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Periods. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg Area.	Per Cent. M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Per Cent. M. L. I. Co. of Reg. Area.
All ages—one and over....	10.8	14.5	74.5	18.5	17.5	105.7
1 to 4.....	1.9	2.2	86.4	1.9	1.8	105.6
5 to 9.....	1.6	3.0	53.3	1.8	3.0	60.0
10 to 14....	3.1	4.2	73.8	4.1	4.8	85.4
15 to 19....	4.5	4.8	93.8	4.0	4.1	97.6
20 to 24....	5.0	4.8	104.2	3.7	3.8	97.4
25 to 34....	6.5	5.6	116.1	4.9	5.2	94.2
35 to 44....	10.6	8.6	123.3	8.8	8.3	106.0
45 to 54....	25.4	22.6	112.4	34.3	27.5	124.7
55 to 64....	56.6	57.4	98.6	102.1	78.4	130.2
65 to 74....	95.5	95.0	100.5	161.4	127.9	126.2
75 and over	102.1	112.8	90.5	158.2	121.2	130.5

Trend of the Death Rate from Diabetes.

In this experience for insured wage earners, there is a slight tendency toward increase in the recorded death rate for diabetes mellitus There is some significance attached to this increase in mortality from the disease. There are no important nosologic considerations confusing the statistics for diabetes as was observed for several other diseases and conditions, notably, cancer. Fatal diabetes is well reported in this mortality experience and the certification of the disease has probably not improved materially during the period covered by this experience. The minimum rate was observed in 1911, 13.3 per 100,000 persons exposed. The group of insured white females, as in other years, was very largely responsible for the high figure shown in 1916 for the entire experience. In 1911, insured white females registered a diabetes rate of 16.5 per 100,000 exposed; in 1916, the figure was 20.2 per 100,000.

In the experience of the Registration Area of the United States, there has been also observed since 1900 a gradual increase in the death rate of diabetes mellitus.

The figures for the individual years are shown herewith by color and sex:

TABLE 149.

MORTALITY FROM DIABETES, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	14.4	10.8	18.5	9.5	11.4
1916.......	15.9	11.5	20.2	11.6	14.8
1915.......	15.1	10.3	20.0	8.1	14.4
1914.......	14.2	10.5	18.4	10.0	10.4
1913.......	13.9	10.8	17.5	8.9	10.9
1912.......	13.7	10.3	17.7	9.7	9.2
1911.......	13.3	11.3	16.5	8.1	7.7

CHAPTER XV.

This chapter will deal with the following diseases:

(1) Appendicitis.
(2) Hernia, Intestinal Obstruction.
(3) Syphilis.
(4) Chronic Bronchitis.
(5) Rheumatism.
(6) Acute Bronchitis.
(7) Alcoholism, Acute and Chronic.

APPENDICITIS.

Interest attaches to the statistical treatment of appendicitis in view of the increased accuracy of the returns in recent years for this condition. Many deaths are now classed properly as due to appendicitis which some years ago would have been charged to "peritonitis." Fortunately, the many deaths classified as due to appendicitis in this experience covered a period during which every effort was made to assign these deaths to their proper cause.

The total number of deaths from appendicitis during the period 1911 to 1916 was 6,345, corresponding to a death rate of 11.8 per 100,000 exposed. The death rate for colored insured persons is slightly higher than that for white lives. This is true for each sex, although the difference between colored females and white females is the more marked. The rate for males is slightly higher than for females among both white and colored policyholders. A more careful examination of the mortality curve shows some very interesting characteristics by age period. Thus, the age period of maximum incidence is at 15 to 19 years. This is true, with the exception of the white female group, for each one of the race and sex categories in this experience. From this age period onward, the rates decline for a period of twenty-five to thirty-five years. The rates then increase somewhat only to decline again. The suggestion of Stouman* that the curve of mortality for this disease is, in fact, a combination of two curves, both skew, appears to be confirmed by our figures. Only additional medical research can clear up the true meaning of this characteristic.

The following table presents the death rates for appendicitis by color, sex and age period:

TABLE 150.

MORTALITY FROM APPENDICITIS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.
Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	11.8	13.2	10.2	13.9	12.8
1 to 4......	4.7	4.8	4.8	5.8	.6
5 to 9......	10.1	10.6	9.9	9.7	7.0
10 to 14.....	13.9	15.6	12.6	15.8	9.0
15 to 19.....	15.7	18.3	12.4	18.5	19.0
20 to 24.....	12.9	15.6	9.9	14.1	15.9
25 to 34.....	12.4	13.6	10.9	13.5	15.0
35 to 44.....	11.6	13.2	9.3	14.4	15.8
45 to 54.....	11.8	12.4	11.1	16.3	10.2
55 to 64.....	11.3	14.2	9.4	12.0	11.0
65 to 74.....	10.8	13.3	9.2	13.4	9.4
75 and over..	11.0	17.0	9.2	—	—

There are no pronounced differences between the death rates of the Industrial experience and those for the Registration Area of the United States when considered by sex and age period. The characteristics above described are observed also in the population data.

The death rates for the individual years between 1911 and 1916 do not show any definite tendency toward increase or decrease. The figures for white males on their own account would indicate a condition of slight increase; for white females there is very little variation, while for colored males there is a slight decrease. The rates for colored females vary too markedly from year to year to permit any conclusion to be drawn. The facts are shown in the following table:

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* Stouman, Knud, "An Analysis of Appendicitis Statistics," *American Journal of Public Health,* Vol. 6, July, 1916.

TABLE 151.

MORTALITY FROM APPENDICITIS, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	11.8	13.2	10.2	13.9	12.8
1916.......	12.3	14.2	10.0	13.1	16.8
1915.......	11.8	13.3	10.1	15.6	11.7
1914.......	12.0	13.5	10.7	12.1	12.5
1913.......	12.0	13.7	10.1	13.5	14.3
1912.......	11.5	12.1	10.6	14.7	11.6
1911.......	10.9	12.2	9.6	14.1	9.7

HERNIA AND INTESTINAL OBSTRUCTION.

Hernia and intestinal obstruction caused 5,519 deaths among Metropolitan policyholders during the period 1911 to 1916. The death rate was 10.3 per 100,000 exposed. Of these deaths, 2,357 were caused by hernia with a rate of 4.4 and 3,162 by intestinal obstruction with a rate of 5.9.

Color, Sex and Age Incidence.

Considering the conditions jointly, the mortality is found to be higher among colored policyholders than among white policyholders; the death rate for colored males is 12.4 per 100,000 exposed, as compared with 8.5 for white males; that for colored females is 12.2 as compared with 11.2 for white females. Among white policyholders the mortality among females is higher than that among males. The highest rates occur among the higher age groups, the maximum being for the period 75 years and over. It is significant that the rate for the lowest age period, 1 to 4 years, is higher than the rates for the succeeding age periods up to age 35. There is considerable difference, however, in the color incidence of the disease in the different age groups. Among white males, the rates for the first five age periods, that is, up to age 24, are higher than the corresponding rates for females. In the periods from 25 to 74 years the males have decidedly lower rates. For ages 75 and over the male rate is again in excess of the female rate. Colored males show rates in excess of those for colored females for the first four age periods, from 1 to 20 years. From 24 to 54 years the female rates are higher. For the age period 55 to 64 and 65 to 74, the male rate is about double that for females; while for the group 75 years and over the male rate is about four times the female rate. These facts are presented in the following table:

TABLE 152.

MORTALITY FROM HERNIA AND INTESTINAL OBSTRUCTION, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	10.3	8.5	11.2	12.4	12.2
1 to 4......	7.7	9.6	5.6	9.6	8.9
5 to 9......	2.3	2.6	1.6	5.2	2.9
10 to 14.....	1.5	2.0	.9	3.2	1.6
15 to 19.....	2.3	2.4	1.6	5.8	4.4
20 to 24.....	3.2	3.4	2.5	4.9	5.0
25 to 34.....	5.4	4.3	4.6	8.0	11.8
35 to 44.....	10.2	7.0	10.9	10.2	16.8
45 to 54.....	20.6	17.9	22.4	17.9	21.2
55 to 64.....	40.4	34.7	44.7	51.0	28.2
65 to 74.....	75.5	70.9	81.9	83.5	41.1
75 and over..	145.0	160.3	141.5	205.8	45.4

Trend of the Death Rate from Hernia and Intestinal Obstruction.

The general tendency during the period has been toward a lower death rate from these causes. The highest rate was that for 1911 (11.0), the lowest that for 1915 (9.6). The rate increased in 1916 to 10.1. Compared with the experience in the Registration Area it will be noted that the rates for the two conditions combined were higher for each year in the Registration Area than for the Industrial policyholders of the Company. A closer analysis, however, shows that this was due to a much higher mortality in the Area for intestinal obstruction, which is common among children under one year of age. Since there are no Industrial policyholders at this earliest age period, the rate for the Company's experience is not affected by this high mortality from intestinal obstruction.

SYPHILIS.

Syphilis as the chief and determining cause of death was returned in 4,659 cases in the Industrial experience of the Metropolitan Life Insurance Company during the six year period 1911 to 1916. This figure corresponds to a death rate of 8.7 per 100,000 living.

In common with other statistical returns on this condition, these figures represent an utterly inadequate measure of its true incidence. In fact, the statistical discussion of the mortality from syphilis is still subject to the gravest reservations because of the tendency of physicians to conceal this disease in their reports of causes of death. A wide gap separates the meager returns of mortality compilations from what clinicians know to be the wide distribution and the serious consequences of syphilitic infection. Nevertheless, the data at our disposal are worthy of consideration, if only because they show an unmistakable tendency in the direction of more accurate certification of this cause of death. A comparison of the rate for the year 1916 in this Industrial experience with that for 1911 would, in itself, indicate a most alarming increase. Thus, in the first year, the figure is 3.4 per 100,000 and, in the last year, 11.9. The apparent rate has more than trebled in the short period of six years. The truth is, however, that each year more effort was expended in identifying suspicious reports as true cases of syphilis. For years to come, the published death rates for syphilis are certain to increase; but many years will elapse before the mortality figures will present an approximate picture of the ravages of this disease.

Fundamentally, the statistics of syphilis suffer from a defect in the system of classification. Conditions clinically known as due to syphilis, such as locomotor ataxia, general paralysis of the insane, and certain cardiovascular, renal and hepatic affections can not, as yet, be assigned to this cause because of the prevailing rules of international compiling practice. For the time being and until the International List of Causes of Death is revised, these diseases must continue to be assigned to conditions of various local tracts, and not to the general disease, syphilis, which classification present medical knowledge demands. Combining syphilis, locomotor ataxia and general paralysis of the insane, there would be not 4,659 deaths from syphilis in this experience, but a total of 7,680. The combined death rate is thus raised to 14.3 per 100,000; but even this figure is far from the truth when we consider the large number of fatal cases of true syphilis which are reported as due to cirrhosis of the liver, aneurism, myelitis, cerebral tumor, and others. It is hoped that the future will clear up the uncertainty and indefiniteness which still affect our statistical knowledge of syphilis mortality.

The following tables show first, the mortality incidence by color and sex of syphilis, definitely so reported or identified, and second, for the group—syphilis, locomotor ataxia and general paralysis of the insane combined. Distinction is made for the individual years between 1911 and 1916 in both tables.

TABLE 153.

MORTALITY FROM SYPHILIS, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916.......	8.7	9.3	3.9	32.4	18.7
1916.......	11.9	13.2	5.2	47.1	24.6
1915.......	11.4	12.2	5.4	44.8	22.4
1914.......	9.8	10.8	4.2	37.8	20.2
1913.......	6.0	5.9	2.7	21.5	16.1
1912.......	8.1	8.8	3.8	25.3	18.2
1911.......	3.4	3.0	1.5	13.9	9.5

TABLE 154.

MORTALITY FROM SYPHILIS, LOCOMOTOR ATAXIA AND GENERAL PARALYSIS OF THE INSANE, COMBINED, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	14.3	16.6	7.3	43.3	25.2
1916.......	15.7	17.7	7.6	55.3	30.6
1915.......	16.0	17.9	8.5	55.0	27.1
1914.......	14.6	16.9	7.2	47.8	26.7
1913.......	13.7	16.5	6.9	37.0	25.4
1912.......	13.7	16.2	7.4	35.3	24.6
1911.......	11.0	13.8	6.1	25.9	15.7

Even these tables, defective as they undoubtedly are, serve to indicate some important relations (of syphilis mortality) in the several color and sex classes. The death rate among colored lives is consistently higher than among whites. The rates are about three to one. The rates are much higher for males than for females in each one of the color groups. If we consider the figures for 1916, we will find a death rate of 55.3 for all ages combined for colored males. This is a mortality figure which must be considered seriously, because it is higher than the rate for many other causes of death which are viewed with much alarm. More interesting relations, however, are brought out in the two following tables which give the death rates by age period both for syphilis so reported or identified, and for syphilis combined with locomotor ataxia and general paralysis of the insane.

TABLE 155.

MORTALITY FROM SYPHILIS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	8.7	9.3	3.9	32.4	18.7
1 to 4......	2.6	2.0	1.4	12.8	14.6
5 to 9......	.6	.5	.4	2.3	2.6
10 to 14.....	.6	.6	.3	3.2	1.6
15 to 19.....	1.3	.7	.9	4.2	7.0
20 to 24.....	3.3	2.6	1.6	11.8	12.4
25 to 34.....	10.2	10.4	4.2	35.2	21.3
35 to 44.....	22.0	29.8	9.0	60.8	31.3
45 to 54.....	24.1	34.9	10.1	71.0	33.0
55 to 64.....	20.1	28.5	8.3	74.4	26.8
65 to 74.....	15.3	21.0	7.0	60.1	24.7
75 and over..	13.0	22.7	4.2	54.9	18.1

A comparison of Tables 155 and 156 shows, as might be expected, that for the earlier age periods no significant changes in the rates are caused by combining deaths reported from syphilis with those reported as due to locomotor ataxia and general paralysis of the insane. In the age groups which cover middle and old age, however, the death rates are raised very materially by the addition of deaths certified as due to these other causes but which are caused,

TABLE 156.

Mortality from Syphilis, Locomotor Ataxia and General Paralysis of the Insane, Combined, Classified by Color, Sex and by Age Period.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	14.3	16.6	7.3	43.3	25.2
1 to 4	2.6	2.0	1.4	12.8	14.6
5 to 9	.7	.6	.4	2.3	2.6
10 to 14	.7	.7	.4	3.2	1.6
15 to 19	1.4	.9	1.0	4.8	7.0
20 to 24	3.5	2.7	1.7	12.5	12.4
25 to 34	12.6	13.8	5.5	38.9	24.3
35 to 44	32.9	48.2	14.2	79.8	40.6
45 to 54	41.6	65.0	18.2	102.9	48.7
55 to 64	43.6	64.0	21.7	117.1	51.9
65 to 74	49.8	65.1	32.2	120.3	66.9
75 and over	74.9	112.1	51.9	137.2	45.4

primarily, by syphilitic infection. The figures for the first age period, 1 to 4 years, do not constitute an adequate illustration of the well known fact that syphilis causes a very high mortality in early childhood. This experience does not cover the mortality of the first year of life; if it did the figures would be many times higher. After the first age group there is a decrease, but beginning with the period 15 to 19 years there is a continuous increase throughout the period of middle and old age. This continuous increase is shown, with one or two minor exceptions, for both males and females among white and colored policyholders. Attention is directed to the extremely high figures representing the mortality from syphilis among colored males at the period between 45 and 65 years.

No reference is made here to the figures for the Registration Area because of the dissimilarity in the two experiences with respect to reporting practice, age and color factors. Syphilis is very common as a cause of death in the first year of life and this infant mortality finds no place in the insurance experience. The situation is further complicated by the uncertainty of the returns in the published mortality figures for the Registration Area and nothing can be gained by further comparison.

CHRONIC BRONCHITIS.

Chronic bronchitis caused 4,224 deaths among Metropolitan Industrial policyholders during the six-year period 1911 to 1916; the death rate per 100,000 living was 7.9. This rate is much higher than that for acute bronchitis in the same experience, which is contrary to the condition found in the expanding Registration Area of the United States. The difference is clearly due to the differing age distribution of the two populations.

The disease has a marked color, sex and age incidence. The rates among colored persons are higher than among the white group for each of the two sexes. The highest mortality is attained in the latest age periods in this series, namely, 65 years and over, although the rates between 55 and 64 years are also significant. Unlike acute bronchitis, there is no high mortality in the earliest age periods of life. It is noteworthy also that the excess pointed out for colored lives does not continue into the advanced ages. From age 65 onward, the rates for white males and females are much in excess. It is not clear just what this reversal of the incidence in the two races indicates.

The following table presents the facts for chronic bronchitis by color, sex and age:

TABLE 157.

MORTALITY FROM CHRONIC BRONCHITIS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	7.9	6.8	8.1	9.4	11.4
1 to 4......	1.7	1.4	1.2	6.4	7.6
5 to 9......	.9	.7	.8	1.9	3.2
10 to 14.....	.5	.2	.4	2.2	1.9
15 to 19.....	.9	.3	.5	2.9	7.3
20 to 24.....	1.7	1.1	.6	5.3	9.5
25 to 34.....	2.4	1.7	1.2	7.0	7.9
35 to 44.....	3.6	4.0	2.3	6.2	7.3
45 to 54.....	9.1	10.8	6.6	17.9	11.3
55 to 64.....	29.5	32.1	27.3	28.2	34.3
65 to 74.....	113.2	111.4	120.3	85.2	82.2
75 and over..	304.4	309.3	317.3	150.9	235.9

As in the case of acute bronchitis, we are not justified in comparing the above figures with those for the expanding Registration Area of the United States. The rates, as we have seen, are important only after age 65, and it is at these ages that the proportion of policyholders to total persons insured is much lower than in the general population.

There has been a marked decline in the death rate in the insurance experience from chronic bronchitis since 1911 in each one of the color and sex classes. The same condition is to be observed in the figures for the expanding Registration Area. It is probable that the same cause has been at work to bring about this result, namely, improved reporting of causes of death by physicians. Many vital statistics offices in the country have for a number of years made a special effort to advise physicians against the use of the term "chronic bronchitis" when tuberculous bronchitis was meant. Undoubtedly the effect of this effort is shown in the rapidly reducing figures for this cause of death.

Rheumatism.

Deaths from rheumatism are classified, according to the detailed International List of Causes of Death, under two distinct headings. The first is acute articular rheumatism and the second chronic rheumatism and gout. Unfortunately so many deaths are still reported as due to "rheumatism," without any qualification, that it is impracticable to determine which of these two conditions actually caused the deaths. The report of "rheumatism" is frequently made in cases where the deaths were due to the acute infection, rheumatic fever, a disease which has epidemic prevalence. This is the condition which the present title No. 47 of the International List (acute articular rheumatism) was intended to cover. Unfortunately, however, the same term "rheumatism" is also returned for many cases of arthritis deformans, which is a disease of the joints of doubtful etiology, but which ordinarily pursues a chronic course. It is also used in cases in which physicians intended it as the equivalent of "chronic rheumatism," a term used loosely for all sorts of long standing painful conditions of the joints, nerves, bones and other parts of the body. Any attempt at this time to show separately the mortality actually due to acute rheumatic fever on the one hand and to chronic rheumatoid arthritis and to gout, on the other must, therefore, necessarily fail under present conditions of reporting and tabulation.

This conclusion is fully demonstrated by an analysis of the age distribution of the deaths charged to acute articular rheumatism in the Metropolitan experience during the period 1911 to 1916. There were 3,409 deaths assigned to acute articular rheumatism during this six-year period, of which 1,023, or 30 per cent., were those of persons over 45 years of age. When these figures are considered in connection with the fact that young adults are the ones principally affected by rheumatic fever and that considerably less than 10 per cent. of the cases, based on authentic experience, might be expected to affect those over 45 years of age, it is readily seen that it is very improbable indeed that the majority of these deaths in the higher age periods are correctly classified. This condition is even more pronounced in the reports of the general population, for according to the annual mortality report of the Census Bureau for 1915, out of 3,274 deaths charged to acute articular rheumatism, 1,383 or 42.2 per cent. were those of persons over 45 years of age. This is contrary to clinical experience.

TABLE 158.

MORTALITY FROM RHEUMATISM (ACUTE AND CHRONIC), CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	7.4	6.8	7.2	9.4	11.3
1 to 4......	2.8	3.3	2.4	3.8	1.3
5 to 9......	7.9	8.0	8.2	5.5	5.8
10 to 14.....	7.6	6.8	8.8	5.1	7.1
15 to 19.....	5.5	5.7	5.1	5.1	7.0
20 to 24.....	4.0	3.6	3.9	6.2	5.5
25 to 34.....	4.4	4.0	3.9	5.0	7.4
35 to 44.....	5.8	5.8	4.3	10.2	9.9
45 to 54.....	9.4	9.8	7.2	15.6	16.2
55 to 64.....	16.3	13.7	14.8	26.4	30.8
65 to 74.....	35.5	28.3	35.5	41.8	71.6
75 and over..	57.6	41.1	56.9	178.4	90.7

In this discussion, for the reasons noted above, it has been decided to combine the two International List titles and to consider them as one statistically with the full knowledge that different clinical entities are included. Only the future will determine what the true incidence of these separate diseases is.

The number of deaths from these two diseases combined among Metropolitan Industrial policyholders during the period 1911 to 1916 was 4,007 and the death rate was 7.4 per 100,000 exposed. Of these deaths 3,409 were classified under "acute articular rheumatism" with a corresponding death rate of 6.3; 598 deaths, with a rate of 1.1, were charged to "chronic rheumatism and gout." Of the 598 deaths charged to the latter, 502 or 83.9 per cent. were those of persons over 45 years of age.

"Rheumatism," analyzed in this way, shows a higher death rate for females than for males among both white and colored policyholders; it shows quite a pronounced excess in the death rate of colored persons over whites. This same excess is also exhibited in the reports for the general population. The higher death rates for the females, however, are in evidence chiefly during the three highest age periods, and it will be observed that during the chief wage-earning periods, among white policyholders at least, the death rates for the males are somewhat greater. The table on page 243 presents the mortality during the period 1911 to 1916 among Metropolitan Industrial policyholders by color, sex, and age.

TABLE 159.

MORTALITY FROM RHEUMATISM (ACUTE AND CHRONIC), CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	7.4	6.8	7.2	9.4	11.3
1916.......	5.9	6.2	5.6	6.4	7.8
1915.......	6.9	6.5	6.8	7.5	10.1
1914.......	7.3	6.4	7.2	9.4	11.2
1913.......	7.8	7.2	7.4	9.7	12.4
1912.......	8.2	7.3	7.8	14.1	11.6
1911.......	8.9	7.7	8.9	9.6	15.3

The general trend of the mortality charged to these diseases is downward, the maximum for the period 1911 to 1916 among the insured having been the rate of 8.9 per 100,000 exposed in 1911 and the minimum, that of 5.9 in 1916. A continuous decrease is shown throughout the intervening years. This downward tendency is observed for both white and colored policyholders. Table 159 shows the trend of the mortality from "acute articular rheumatism" and "chronic rheumatism and gout" combined during the period 1911 to 1916.

Acute Bronchitis.

There were 2,636 deaths among Metropolitan Industrial policyholders from acute bronchitis during the six-year period 1911 to 1916. This corresponds to a death rate of 4.9 per 100,000 living.

The deaths are concentrated at the two extremes of life, that is, under age 5 and over age 65. Taking the experience as a whole, 70 per cent. of all the deaths from acute bronchitis are found in these age periods. During the remaining years of life the deaths are so few as hardly to justify any particular comment.

The death rate from acute bronchitis is considerably higher among colored than among white persons; the rate for females in each group is higher than for males. The highest rate in the total experience is found in the age group 75 years and over, 100.4 per 100,000. The next highest rate is in the period 65 to 74 years, 31.9 per 100,000. The age period 1 to 4 years follows with a rate of 27.0. These age characteristics, however, are very different when we consider the white and colored races. Among colored males and females, about one-half the deaths from acute bronchitis are found in the period 1 to 4 years; this results in very high death rates for this early period of life; in fact, the rate for colored males was over two and one-half times that for white males and that for colored females three and one-third times the rate for white females.

The table on page 246 presents the facts by age period and for each sex and color group.

It is impossible to make a fair comparison between the death rates referred to above and those for the expanding Registration Area of the United States. The reason is that acute bronchitis is a disease which causes death chiefly in infancy and old age but more especially in early infancy. In the Registration Area over one-half of the deaths charged to this disease are of infants under one year of age and a very considerable number relate to persons over

TABLE 160.

MORTALITY FROM ACUTE BRONCHITIS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	4.9	4.4	4.8	6.4	7.5
1 to 4......	27.0	23.5	23.9	62.8	80.0
5 to 9......	2.0	1.9	1.7	1.9	5.1
10 to 14.....	.5	.5	.2	2.2	2.5
15 to 19.....	.6	.3	.4	1.0	4.1
20 to 24.....	.6	.4	.4	2.6	2.1
25 to 34.....	1.0	.7	.4	3.4	2.8
35 to 44.....	1.5	1.3	.9	3.8	3.4
45 to 54.....	2.3	3.0	1.7	4.2	2.6
55 to 64.....	8.1	8.0	8.7	6.6	5.7
65 to 74.....	31.9	26.8	37.4	8.4	29.4
75 and over..	100.4	68.1	123.1	68.6	81.7

70 years of age. In the first of these age groups there are no Metropolitan policyholders at all, and for persons over 70 a far smaller proportion of Industrial policyholders were observed than were estimated to be in the general population. It is, therefore, not at all surprising that the crude rate for acute bronchitis in the general population is very much higher than that for the Industrial experience but no significance can possibly be attached to these differences.

There have been slight and unimportant changes in the death rate in the Industrial experience in the period between 1911 and 1916.

ALCOHOLISM, ACUTE OR CHRONIC.

There were 2,555 deaths among Metropolitan Industrial policyholders during the period 1911 to 1916, which, on the basis of descriptions of causes of death on death claims, were classified as due to alcoholism. The death rate was 4.7 per 100,000 exposed. There were no marked variations in the mortality, as compiled, during the six-year period, the maximum rate for the period being that for 1912 (5.3) and the minimum for the year 1911 (4.0). Compared year by year with the death rates for the expanding Registration Area, it will be noted that those for the latter were, in general, a little higher than those for the policyholders, the single exception being the year 1912 when the rate was the same for each experience (5.3).

Color, Sex, and Age Incidence.

The death rate per 100,000 for white males (8.8) was higher than for colored males (6.8) and that for white females (1.6) was slightly in excess of the rate for colored females (1.5). The heaviest mortality was registered in the age period 35 to 44 years (14.2 per 100,000 exposed), with a rate in the following age period, 45 to 54 years, but slightly less (13.9 per 100,000). In these two age groups occurred 1,529 deaths or 59.8 per cent. of all the deaths reported from this cause among the insured group. Considerably more than half of the mortality from this cause occurs, year after year, in the experience of the expanding Registration Area between the ages of 35 and 55 years. The mortality under 25 years of age from alcoholism is negligible. For white males the rate for the period 45 to 54 years is slightly higher than in the preceding period; for white females and for colored persons of each sex the rate at this period is either slightly lower than or identical with that for the preceding period. After age 54, however, there is a uniform decline. The following table gives the rates per 100,000 exposed by color, sex, and by age period:

TABLE 161.

MORTALITY FROM ALCOHOLISM, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	4.7	8.8	1.6	6.8	1.5
1 to 19.	.1	†	†	.3	.4
20 to 24.	1.0	1.7	.3	1.6	1.1
25 to 34.	6.2	12.8	2.4	6.0	1.5
35 to 44.	14.2	32.2	4.7	16.6	3.1
45 to 54.	13.9	32.4	4.1	14.7	3.1
55 to 64.	10.2	24.0	2.2	13.8	1.3
65 to 74.	8.4	18.4	2.3	16.7	—
75 and over. .	4.8	12.8	—	13.7	—

† Less than .05 per 100,000 exposed.

Unreliability of the Data for Alcoholism.

Published reports of deaths and death rates for alcoholism are not regarded seriously by those who compile them. The difficulties which beset the path of the vital statistician in obtaining figures covering mortality from this condition are many and serious. The same trouble is encountered as is found in dealing with the venereal diseases: physicians often hesitate and, in fact, wilfully refuse to write on death certificates the name of the primary cause of death when such cause is one which might cast a certain degree of odium on the family of the deceased. In such diseases as this many physicians reason that if they cannot comply with the requirement of the law and at the same time have what they consider due regard for the confidence of patients and the positions of their families, they will disregard the spirit of the law and report as causes of death terminal or complicating conditions rather than primary causes. There is little question that each year thousands of deaths occur in which alcoholism was a factor but which are never returned as due to this cause. Many of the deaths reported as due to "cirrhosis of the liver" are deaths of which alcoholism was the primary and causative factor. Many that are ascribed to "meningitis" are caused by that variety known as alcoholic serous meningitis. Many reported as caused by "apoplexy" or "cerebral edema" are in reality cases of alcoholic cerebral apoplexy or alcoholic cerebral edema, or what is commonly known as alcoholic "wet brain."

The death rates in the table on page 247 are not presented, therefore, as figures representing the actual or approximate mortality from alcoholism among the Company's Industrial policyholders. They represent reported conditions—not actual conditions. The rates would be much lower than they are if it were not for the fact that special inquiries by the Statistical Bureau have brought out the fact of the existence of alcoholism in many cases where no mention of it was made by the physicians in their statements to the Company or on certified copies of the death certificates. Many years will elapse before even approximate death rates covering the mortality from this disease can be presented by any statistical office.

CHAPTER XVI.

This chapter will deal with the following diseases:

(1) Pellagra.
(2) Malaria.
(3) Angina Pectoris.
(4) Ulcer of Stomach.
(5) Acute Poliomyelitis.

PELLAGRA.

The facts for pellagra mortality in this investigation of insured wage earners are of special importance, first, because the areas represented in this inquiry cover a large part of the region of pellagra incidence in the United States, and second, because the figures refer to the wage earning group of the population among whom pellagra is more prevalent than in populations generally. Furthermore, adequate data on the race or color, sex and age incidence, in relation to persons exposed, are also available from this study and these may aid the laboratory and clinical experts in their researches into this disease. The published population mortality statistics do not, at present, offer such opportunities for the detailed examination of pellagra mortality. The table on page 250 gives an idea of the geographic distribution of pellagra in the several districts of the South and Southwest where most of the pellagra deaths in this experience were recorded. The color incidence is also shown.

It will be observed upon comparison of the following table with the one for malaria (shown on page 256) that, in general, where malaria death rates are high, pellagra death rates are low. This does not, of course, indicate any relation between the two diseases. It does emphasize the fact, however, that the chief sanitary problem of the coast, gulf and river plain of the South is malaria and that of the Southern Appalachian Plateau, supporting a considerable factory population, is pellagra. Malaria and pellagra are two of the outstanding diseases and conditions which still constitute a serious menace to the efficiency of the Southern wage earner—more so for the negro than for the white man. Both diseases, when of

TABLE 162.

MORTALITY FROM PELLAGRA IN SELECTED SOUTHERN DISTRICTS.

Classified by Color. Years 1914, 1915 and 1916 Combined.
Rates per 100,000 Exposed.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Area and District.	Rate per 100,000.	
	White.	Colored.
Entire Metropolitan Experience	3.3	17.9
Southern districts combined	27.5	57.6
Birmingham, Ala	16.0	28.7
Little Rock, Ark	16.5	63.1
Atlanta, Ga	68.8	106.0
Augusta, Ga	67.7	101.0
Columbus, Ga	176.6	293.9
Macon, Ga	102.3	108.5
Savannah, Ga	33.4	70.4
New Orleans, La	5.4	19.1
Poplar Bluff, Mo	11.4	8.7
Charlotte, N. C	81.4	102.4
Greensboro, N. C	53.1	98.1
Raleigh, N. C	35.1	127.3
Columbia, S. C	167.5	167.9
Spartanburg, S. C	83.8	117.8
Chattanooga, Tenn	51.5	57.5
Jackson, Tenn	29.5	61.2
Knoxville, Tenn	68.8	56.8
Memphis, Tenn	22.3	109.3
Nashville, Tenn	41.4	40.3
Richmond, Va	24.2	19.6
Roanoke, Va	56.2	52.3

the chronic type, involve long periods of disability for work and in certain areas of intensive incidence, are the cause of heavy preventable mortality at the productive ages of life. Among the white industrial population in certain sections of the South, malaria and pellagra, together, often assume more importance as causes of death than does tuberculosis.

Before drawing any conclusions on the comparative color, sex and age incidence of the disease it should be remarked that the exposure upon which the death rates reported in this study are based, comprises *all* of the Company's policyholders in the United States and in Canada. A very large proportion of this exposure, therefore, was located in nonpellagrous territory. In the discussion of malaria it will be remarked that 20 per cent. of the Company's total exposure to risk was located in the Southern and

Southwestern sections of the country. In order to have death rates best constituted for purposes of investigating the true color, sex and age incidence of the disease it would be desirable to confine the exposure and deaths to pellagrous portions of the country. This is, however, quite impracticable at the present time both for population and insurance data. The rates are presented with this reservation as to the lack of homogeneity in the geographic areas of the exposures and of the deaths. The figures have considerable value, nevertheless, as will be seen in the following table:

TABLE 163.

MORTALITY FROM PELLAGRA, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	4.3	1.6	3.9	6.4	20.7
1 to 4......	.4	.2	.5	2.3	1.5
5 to 9......	.3	†	.2	2.3	3.5
10 to 14.....	.6	.2	.5	2.7	3.4
15 to 19.....	.9	.3	.9	1.3	6.2
20 to 24.....	2.8	.3	2.5	2.3	19.8
25 to 34.....	5.5	1.4	4.8	4.6	24.5
35 to 44.....	8.9	2.9	8.4	8.8	31.1
45 to 54.....	9.2	4.1	8.1	15.3	30.9
55 to 64.....	13.0	10.9	10.1	19.2	39.2
65 to 74.....	11.9	10.3	8.8	21.7	41.1
75 and over..	10.1	9.9	5.0	41.2	45.4

† Less than .05 per 100,000 exposed.

There is a constantly rising death rate with advancing age. The disease has its lowest incidence as a cause of death in the ages of childhood. In fact, the number of deaths of white children under 15 is negligible; colored children show a larger number of cases. After age 15, the rates increase regularly with age until the age period 55 to 64 years is reached. From this point onward the rates fall slightly among white lives but continue to increase among the colored

The death rate among colored persons is higher than among white persons. This is true at every age period and for both sexes. In fact, the rate is four times as high for the colored males as for the white males, all ages combined, and more than five times as high for the colored females as for the white females. This condition is largely the result of the different geographic distributions of the white and colored policyholders. The latter reside for the most part in the Southern States where pellagra is common, whereas the majority of white policyholders reside in the Northern States where pellagra is still very rare. There is, nevertheless, a real excess in the mortality rate among the colored as is shown by the figures in the first table of this section for a number of representative southern cities and towns where pellagra has been prevalent for a number of years.

The rate for females is higher than for males both among the white and among the colored. This is found at virtually every age period. From ages 25 to 54 years the pellagra death rate of white males is only from 30 to 50 per cent. that of white females. Beginning with the age period 55 to 64 years and continuing to the end of the table, white males, however, show a higher pellagra mortality than do white females. Colored males at all age periods show lower death rates for pellagra than do colored females. It would be very interesting to learn why females in this country have the higher rates since no such relation between pellagra death rates of the sexes has been observed in a number of other countries where the disease is prevalent.

Comparison of Pellagra Mortality Among Insured White Persons and Among the General Population of the Expanding Registration Area of the United States.

A comparison of pellagra mortality among this group of insured wage earners and among the population of the expanding Registration Area in the United States is possible under certain limiting conditions. It must be remembered, in the first place, that the exposure to risk in the insurance experience covers a very much larger proportion of persons in the pellagrous region of the South and Southwest than does the population included in the expanding Registration Area of the United States. This fact in itself would account for the great excess in pellagra death rates of insured white persons. Thus, between 25 and 64 years for both white males and white females, there is, practically, a constantly rising rate of excess in the pellagra death rate of insured white persons over the rates for the general population of the Registration Area. The excess is more marked for insured white males than for insured white females. In view of the difference between the two sets of data as to geographic area and as to the social status of persons included in both experiences, it would be well not to stress comparison of the figures too far. The pellagra mortality experience of the Registration Area, 1910 to 1915, and of insured white persons, 1911 to 1916, according to sex and age period is shown comparatively in the following table:

TABLE 164.

MORTALITY FROM PELLAGRA.

Death Rates per 100,000 Persons Exposed. Classified by Sex and Age Periods. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population of Expanding Registration Area of the United States (1910 to 1915).

Age Period.	Males.			Females.		
	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.	M. L. I. Co. (White).	U. S. Reg. Area.	Percentage M. L. I. Co. of Reg. Area.
All ages—one and over...	1.6	1.1	145.5	3.9	2.8	139.3
1 to 4.....	.2	.2	100.0	.5	.3	166.7
5 to 9.....	†	.3	10.0	.2	.3	66.7
10 to 14....	.2	.2	100.0	.5	.4	125.0
15 to 19....	.3	.2	150.0	.9	1.0	90.0
20 to 24....	.3	.5	60.0	2.5	2.4	104.2
25 to 34....	1.4	.9	155.6	4.8	3.7	129.7
35 to 44....	2.9	1.4	207.1	8.4	5.2	161.5
45 to 54....	4.1	2.3	178.3	8.1	4.9	165.3
55 to 64....	10.9	3.8	286.8	10.1	5.4	187.0
65 to 74....	10.3	3.8	271.1	8.8	4.9	179.6
75 and over	9.9	3.4	291.2	5.0	3.7	135.1

† Less than .05 per 100,000 exposed.

An examination of the above table will show some interesting similarities in the two experiences. In the first place, females in both cases show higher rates than do males; there are only a few unimportant exceptions. Secondly, the rates increase with advancing age. In spite of their differences, therefore, the two sets of data confirm one another in essential respects. If they do not correspond more closely in actual rates it is because they refer to different geographic areas. The above conclusion is confirmed by the similar distribution of the deaths from pellagra by age in the two experiences as is shown in the following table:

TABLE 165.

NUMBER AND PERCENTAGE DISTRIBUTION OF DEATHS FROM PELLAGRA. 1911 TO 1915. CLASSIFIED BY AGE PERIOD.

Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department, and General Population of Expanding Registration Area of the United States.

Age Period.	Metropolitan Experience.		U. S. Registration Area.	
	No. of Deaths.	Per Cent. of Total.	No. of Deaths.	Per Cent. of Total.
All ages—one and over	1942	100.0	6694*	100.0
1 to 14.......	74	3.8	264	3.9
15 to 19.......	52	2.7	193	2.9
20 to 24.......	136	7.0	491	7.3
25 to 34.......	394	20.3	1326	19.8
35 to 44.......	453	23.3	1565	23.4
45 to 54.......	355	18.3	1214	18.1
55 to 64.......	340	17.5	947	14.1
65 to 74.......	120	6.2	516	7.7
75 and over....	18	.9	178	2.7

* Known ages only.

The two distributions are much alike. It is only after age 55 that differences make themselves felt and these are the result in all probability of the very different age constitution of the living in the two groups; the proportion of policyholders after age 65 is very much lower than the proportion in the corresponding age group of the general population. For the ages preceding this period of life, however, there is virtual correspondence.

Trend of the Death Rate from Pellagra.

The death rate from this disease may be expected to vary according to the greater or less intensity of the factors which produce the disease in the first place, and which aggravate the disease and retard recovery in the second place. It has been fairly well established by recent research work of the U. S. Public Health Service that pellagra is a deficiency disease, the result of a persistent absence in the diet of meat, eggs, milk, beans, peas and other proteins. The every-day diet of the wage earning element in the South is characterized by this deficiency and is conditioned primarily by the state of industry, the regularity of employment and the wage-level. An important secondary fact not to be overlooked, however, is the general status of some parts of the industrial population of the South as regards efficiency in personal and home life, and whether or not there is disregard of the plain facts of hygiene, diet and order in the home.

In the following table are shown the facts of pellagra mortality for the six year period 1911 to 1916, distinguishing single calendar years:

TABLE 166.

MORTALITY FROM PELLAGRA, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	4.3	1.6	3.9	6.4	20.7
1916.......	3.6	1.4	2.7	6.2	22.4
1915.......	6.7	2.1	5.9	12.2	36.6
1914.......	5.3	2.2	4.7	6.9	26.7
1913.......	3.3	1.3	3.4	4.6	13.1
1912.......	2.8	1.2	2.6	4.1	12.5
1911.......	3.6	1.7	4.1	3.4	10.5

The possible effect of economic conditions upon the incidence of pellagra may be seen from the foregoing data. Late in 1914 and in 1915, when the economic situation in the South was exceedingly grave, the pellagra mortality rates were high. In 1916, following a period of economic revival, characterized by an extraordinary movement of raw and manufactured cotton products, resulting in prosperity for both employers and wage earners alike, the pellagra death rate dropped to a figure of 3.6 per 100,000 exposed. These economic facts affected both the white and colored groups in this experience, and likewise, probably, the pellagra death rates of these groups.

It must be remembered that pellagra manifests itself mainly in two clinical forms, an acute type and a chronic recurrent form. It is probable that an improvement in the industrial situation which results in better wages and regular employment and consequently in a more generous family diet reduces the number of acute cases and that it modifies the severity of the chronic recurrent form of the disease.

MALARIA.

No infection, except perhaps tuberculosis, compares with malaria in the extent of its geographic distribution or in its importance as a cause of physical disability among mankind generally. Fifty years ago, in the United States, malaria seriously affected nearly every state then fairly thickly populated. Noteworthy epidemics were recorded in Michigan, New Jersey, Pennsylvania and Massachusetts, as well as in the South, where the disease still lingers as a cause of considerable and preventable loss. The advance of sanitary engineering, the growth of populations and the subsequent filling-in of swampy areas have gradually eliminated the breeding grounds of the anopheles mosquito and have thus almost eradicated malaria from the northern tier of states. The very largest registration of malaria in this mortality experience of wage earners was drawn from the group of persons insured in the southern and southwestern portions of the United States. It is significant to

TABLE 167.

MORTALITY FROM MALARIA IN SELECTED SOUTHERN DISTRICTS.

Classified by Color. Years 1914, 1915 and 1916 Combined.
Rates per 100,000 Exposed.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Area and District.	Rate per 100,000.	
	White.	Colored.
Entire Metropolitan Experience	1.4	15.8
Southern districts combined	9.3	41.6
Birmingham, Ala	5.8	35.9
Little Rock, Ark	33.0	160.7
Augusta, Ga	32.8	34.5
Columbus, Ga	12.5	84.5
Macon, Ga	28.5	36.2
Savannah, Ga	11.1	130.3
Cairo, Ill	44.4	54.2
Paducah, Ky	54.6	73.2
New Orleans, La	4.4	36.4
Poplar Bluff, Mo	106.2	60.9
St. Louis, Mo	2.0	9.4
Charlotte, N. C.	4.4	46.5
Raleigh, N. C.	15.4	50.9
Columbia, S. C.	17.8	21.7
Jackson, Tenn	51.6	89.0
Memphis, Tenn	33.5	105.9
Nashville, Tenn	2.5	17.6

observe also that most of these malaria deaths occurred in the coastal, gulf and river plain of the South and nominally few of them on the Appalachian Plateau. The table on page 256 shows the geographic distribution of the malaria deaths in this mortality experience for the combined years 1914, 1915 and 1916, the only three years for which the data are fully available with respect to geographic incidence.

The 2,295 deaths from malaria in the experience of the six year period correspond to a death rate of 4.3 per 100,000 persons exposed. It should be remembered in considering this rate that whereas most of these deaths from malaria came from territory in the southern and southwestern sections of the United States, the exposure upon which the death rates are based covers all of the Company's policyholders in the United States and Canada. The southern and southwestern business of the Company in 1916 constituted approximately 20 per cent. of the total exposure. The total rate is therefore devoid of much meaning although the figures for the incidence by color, sex and age do show interesting interrelations and these are given in the following table:

TABLE 168.

MORTALITY FROM MALARIA, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	4.3	2.1	1.9	17.8	22.1
1 to 4......	6.5	3.7	3.7	42.9	44.4
5 to 9......	3.2	2.2	1.7	16.6	17.3
10 to 14.....	1.9	1.1	1.1	5.4	13.4
15 to 19.....	1.9	.9	.7	9.9	12.9
20 to 24.....	2.8	1.2	1.2	13.8	14.5
25 to 34.....	3.4	1.4	1.1	12.4	14.7
35 to 44.....	3.8	2.0	1.3	11.2	16.1
45 to 54.....	6.5	3.3	2.6	24.4	29.0
55 to 64.....	10.0	3.9	4.5	41.4	54.6
65 to 74......	16.0	8.4	7.0	81.9	89.3
75 and over..	15.4	9.9	4.2	123.5	99.8

Comparisons between the white and colored malaria death rates should be made with special caution. Most of the colored policyholders in the Company's experience are located in the South and Southwest, and this fact alone would conduce to a much higher malaria death rate than was recorded among white persons, the majority of whom are located in northern areas not affected to any great extent by malarial infection. The comparative malaria death rates presented in the introductory table to this section will give some idea, however, of the relative color incidence at least of deaths from malaria.

According to the age statistics, malaria mortality was nearly eight and one-half times as frequent among colored males and nearly 12 times as frequent among colored females as among the corresponding sex groups of the white population. Males of the white experience showed a malaria death rate practically eleven per cent. higher than did females of the same race group. Colored males, on the other hand, showed a malaria mortality practically twenty per cent. more favorable than the rates for colored females. It is not possible to account for this reversal of the sex ratio of malaria mortality from the facts at hand.

The age characteristics of the malaria mortality curve are well defined. The highest rates are found at the two extremes of life, the minimum being reached at the period of adolescence. From age 20 onward the rates increased fairly regularly with only here and there an exception. A high mortality figure for the period of early childhood is to be noted.

TABLE 169.

Mortality from Malaria, Classified by Sex and by Age Period.

Death Rates per 100,000 Persons Exposed. 1910 to 1915.

Experience of the Expanding Registration Area of the United States.

Age Period.	Males.	Females.
All ages—one and over	2.4	2.4
1 to 4	4.4	4.9
5 to 9	1.7	1.6
10 to 14	1.0	1.2
15 to 19	1.2	1.3
20 to 24	1.5	1.7
25 to 34	1.5	1.6
35 to 44	1.8	1.7
45 to 54	2.7	2.3
55 to 64	4.5	3.6
65 to 74	5.9	6.0
75 and over	13.1	11.6

Because of the sharp differences in geographic distribution of the two groups of exposed lives it is not deemed desirable to make a direct comparison between the death rates of insured wage earners and those for the general population in the expanding Registration Area of the United States. It may be of interest, however, to observe the very similar conformation of the curve of mortality by age and sex in the Registration Area during the period 1910 to 1915. This is offered on page 258.

At some of the age periods the death rates of the insured experience are higher and at others they are lower than those shown for the Registration Area considered by sex, but no significance may be attached to these ratios. The population mortality figures for the disease, however, are valuable in that they confirm the relation previously outlined in the death rates by age period, namely, a crest at each end of the mortality curve and a minimum point between 10 and 20 years of age.

Trend of the Malaria Death Rate—1911 to 1916.

The malaria death rate of 1911 was the highest and the rate of 1916 was the lowest in the Industrial experience. During this period the rate declined without exception, the figure for 1916 being less than one-half that recorded for 1911. The decline was more pronounced for white than for colored persons and greater for females than for males in each color group. The facts are shown below for each of the single calendar years:

TABLE 170.

MORTALITY FROM MALARIA, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1911 to 1916......	4.3	2.1	1.9	17.8	22.1
1916.......	2.9	1.4	1.3	14.4	15.1
1915.......	3.5	1.7	1.8	14.3	17.7
1914.......	3.7	1.7	1.6	16.2	21.0
1913.......	4.5	2.1	1.8	20.5	23.5
1912.......	5.4	3.1	2.4	20.9	26.6
1911.......	6.1	3.2	3.0	21.2	30.6

Angina Pectoris.

Two thousand two hundred and eighteen (2,218) deaths from angina pectoris were reported in this experience during the six year period 1911 to 1916, corresponding to a death rate of 4.1 per 100,000 exposed. In no year was the mortality from this cause noticeably high as compared with other years. The maximum death rate was observed in 1913 (4.4) and the minimum in 1916 (3.8).

The death rates for the expanding Registration Area of the United States showed the same general uniformity but were considerably higher than those for the Metropolitan experience. The maximum rate for the Registration Area during the sexennium was 7.7 per 100,000 population in 1915 and the lowest was that for 1911 (7.1). The higher mortality in the Registration Area as compared with the Metropolitan experience was due almost altogether to the age distribution of the two experiences. About 40 per cent. of the deaths due to angina pectoris are those of persons over 70 years of age and the exposure at these ages is very much smaller among the Industrial policyholders than in the population of the Registration Area.

Color, Sex and Age Incidence.

The death rates for Metropolitan policyholders were identical for white and colored males (4.6), but showed a rather marked excess for colored females (5.8) over white females (3.5). Among white policyholders, the death rate for males was higher than that for females, but among colored policyholders the contrary was true. Among white decedents, the excess of mortality of males over females was very marked for the age groups in which the greatest number of deaths occurred, namely, 45 to 54, 55 to 64 and 65 to 74 years. Among colored persons the rates for females for the age periods 45 to 54 years (15.7) and 65 to 74 years (38.8) were much higher than those for males at these age periods (10.1 and 30.1); for the period 55 to 64 years, however, the male rate (21.0) slightly exceeded the female rate (19.8).

The following table presents the facts by color, sex and age:

TABLE 171.

Mortality from Angina Pectoris, Classified by Color, Sex and by Age Period.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	4.1	4.6	3.5	4.6	5.8
1 to 24.....	.2	.1	.2	.5	.3
25 to 34.....	1.2	1.2	.9	2.0	2.8
35 to 44.....	3.4	3.5	2.2	7.6	6.4
45 to 54.....	8.3	12.0	4.6	10.1	15.7
55 to 64.....	21.4	28.9	16.8	21.0	19.8
65 to 74.....	49.4	68.8	39.8	30.1	38.8
75 and over..	70.1	73.8	73.7	—	54.4

In the analysis of these figures, it should be borne in mind that the number of deaths involved among colored policyholders was only 352 and that this number is quite too small to use as a basis for important conclusions. Another point should be remembered, namely, that the term "angina pectoris" is used loosely in this country. It is still a favorite expression, especially with coroners, in cases of sudden death.

Ulcer of the Stomach.

Ulcer of the stomach caused 2,159 deaths among Metropolitan Industrial policyholders during the six year period 1911 to 1916, corresponding to a death rate of 4.0 per 100,000 exposed. Examination of the rates for the different years shows that there were no fluctuations of importance, the rate for 1915 (3.8) showing the greatest deviation from the average for the period. The death rate for ulcer of the stomach in the Registration Area showed a slight upward trend; in fact this has been continuous during the period, the maximum (4.6) being that for the year 1916.

Color, Sex and Age Incidence.

The crude death rates for the Metropolitan Industrial policyholders indicate a higher incidence for colored persons than for white persons, and a preponderance of mortality of males among the white, but of females among the colored. Among the males, the highest rates were found at the age period 75 and over, 21.3 per 100,000 for the white and 41.2 per 100,000 for the colored. There was a continuous increase throughout the lower age periods until the maximum was reached at the age period 75 years and over. Females had the highest rates at the age period 65 to 74 (17.9 and 28.2 per 100,000 white and colored policyholders respectively). Beginning with the earliest period, they also showed a continuous increase throughout the lower age groups.

The following table shows the color, sex and age incidence of ulcer of the stomach among Metropolitan Industrial policyholders:

TABLE 172.

MORTALITY FROM ULCER OF THE STOMACH, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1911 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over	4.0	4.3	3.1	6.2	6.4
1 to 19........	.4	.3	.4	.4	1.1
20 to 24........	2.0	1.8	1.8	2.3	4.0
25 to 34........	3.9	4.6	2.8	5.5	6.3
35 to 44........	7.6	10.3	5.0	11.8	9.1
45 to 54........	9.7	15.3	6.0	11.1	10.7
55 to 64........	12.9	17.4	9.3	16.2	15.0
65 to 74........	19.7	19.1	17.9	35.1	28.2
75 and over.....	18.7	21.3	15.9	41.2	18.1

ACUTE POLIOMYELITIS.

With the exception of the single year 1916, acute poliomyelitis has caused only between 100 and 150 deaths per annum in the entire mortality experience of insured wage earners under review. The death rate varied from 1.2 to 1.8 per 100,000 persons exposed between 1911 and 1915. In 1916, however, an epidemic of the disease occurred and the rate rose to 12.2 per 100,000. The cases in that year were, for the most part, confined to the Middle Atlantic and to a few of the New England States. The City of New York showed by far the largest number of cases recorded. Out of the total of 1,245 cases registered in 1916, 456 or 36.6 per cent. were reported from that city. There was also a noteworthy representation of deaths from the cities of Newark and Philadelphia.

Poliomyelitis has a very marked color, sex and age incidence. In this respect, it is very similar to the other acute infectious diseases of childhood already considered. This is made evident in the following table, which displays the color, sex and age incidence of this disease for 1916 alone:

TABLE 173.

MORTALITY FROM ACUTE POLIOMYELITIS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. Year 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	12.2	16.9	10.2	6.2	3.5
1 to 4......	86.4	99.7	75.3	79.4	53.0
5 to 9......	26.9	31.8	23.5	19.1	15.1
10 to 14.....	4.8	5.7	4.9	—	—
15 to 19.....	2.4	3.2	1.6	1.9	1.7
20 to 24.....	1.2	1.0	1.2	3.6	—
25 and over..	.4	.9	.3	—	—

White males and white females suffer much more acutely from poliomyelitis than do the same sex groups among colored people. It should be recalled, though, that in this mortality experience colored and white persons were very unequally exposed to the disease. Males show higher mortality rates than do females at every age period with the exception of the age period 20 to 24 years. The disease takes its highest toll in the earliest years of childhood. In fact, the rate for white males under five, 99.7 per 100,000, was higher than the death rate for measles (84.1 per 100,000) and for scarlet fever (53.5 per 100,000) in the corresponding age period of life. The same fact was observed for the age period five to nine. The rates decrease rapidly beginning with age ten years, and the deaths are very few after age 25. Only 100 deaths after age 25 occurred out of the total of 1,889 deaths in the six year period.

CHAPTER XVII.

MISCELLANEOUS DISEASES AND CONDITIONS.

In addition to the major diseases and conditions discussed in the foregoing text there are a number which have played a not inconsiderable part in this mortality experience. Some of these justify brief discussion because of their importance as public health problems, irrespective of the relatively small number of deaths due to them; others claim attention because they illustrate recent tendencies in the technique of mortality statistics. The figures representing the number of deaths from these minor conditions should be accepted in most cases with some reservation. In practically all instances there has been an apparent decline in the death rate for these causes of death during the six year period. This, we believe, is due, in large part, to improved certification of the causes of death by physicians. The increasing interest of physicians in preventive medicine, the circulation, by various vital statistics offices, of educational literature on the certification of causes of death, and the many letters written to physicians asking them for more definite statements of causes of death, have resulted in reducing by many thousands the registration of deaths under these titles and correspondingly increasing the numbers assigned to the more approved and reliable headings of the International List. These diseases and conditions of miscellaneous order will be considered according to their International List position.

Dysentery.

Under dysentery were classified 2,029 deaths during the experience period, corresponding to a death rate of 3.8 per 100,000 exposed. There has been a practically continuous decline in the death rate during the sexennium. The maximum rate is that for the year 1911 (4.8). The minimum rate was recorded in 1916 (3.1). The term "dysentery" is used by physicians very loosely in this country. True amebic dysentery, caused by the *ameba dysenteriae,* is comparatively rare in North America with the exception of the southern states. The type known as bacillary dysentery, which occurs both sporadically and in epidemics, is also infrequent because of steadily improving sanitary conditions. It has been estimated, and, in fact, fairly well demonstrated by registration offices, that a large proportion of the "dysentery" (so reported) in the United States is really enteritis or gastroenteritis. This is true especially in cases where it is reported for infants under two years of age. Examination of the Census Bureau reports on mortality statistics shows that approximately one third of the mortality reported for dysentery is that of children under two years of age. Very little of this, as a matter of fact, is correctly assignable to this title. The deaths which have been "charged away" from dysentery in the insurance experience have gone to swell the totals, chiefly, of diarrhea and enteritis and abdominal tuberculosis.

Erysipelas.

Twelve hundred and eighty-nine erysipelas (1,289) deaths were registered during the six year period 1911 to 1916. The death rate was 2.4 per 100,000 exposed. There has been no marked change during the period in the death rate for this condition. The death rates for white policyholders are considerably in excess of those for the colored, and the mortality among males for each race exceeds that among females. In the general population experience the death rates are higher than those for the Company's Industrial policyholders. This is due chiefly to the fact that approximately one third of the mortality caused by erysipelas is among infants under one year of age, a class which does not form a part of the Metropolitan experience.

Under erysipelas are classified all deaths so reported, with no information as to type or primary cause. These include cases of slight traumatism complicated by the disease, but do not include those deaths in which erysipelas supervenes nor violence cases where the traumatism, in itself, would have caused death.

Purulent Infection and Septicemia.

Under this heading were classified 1,083 deaths, corresponding to a death rate of 2.0 per 100,000 exposed. The general trend of mortality throughout the six year period has been downward. Several hundreds of deaths which would have been classified under this heading on the basis of the original reports received from physicians, have been transferred to other titles on the basis of more definite data supplied by these physicians. As an illustration of the loose manner in which the term "septicemia" is used by American physicians, we may cite the result shown by 295 replies from physicians[1] who reported it as a cause of death of policyholders in this investigation during the six years 1911 to 1916. In 207, or 70.2 per cent. of these cases, the deaths, on the basis of the corrective data furnished by the physicians, were charged to titles other than purulent infection and septicemia. Of the 207 replies that were received 76 or 25.8 per cent. were assigned to *puerperal* septicemia alone. The remainder were scattered among various diseases and forms of violence. The published death rate in the expanding Registration Area of the United States has been showing a decreasing trend for many years which, also, is due to the fact that physicians are reporting under the primary diseases cases where blood poisoning was a *complication* of the primary causative condition.

Gonococcus Infection.

The number of deaths charged to this disease (200) during the six years covered by this report does not indicate that this is a factor of much importance in this mortality experience. The death rate for the period was but .4 per 100,000 exposed on the basis of the reports of gonococcus infection which have been returned. Low as this figure is, it is, nevertheless, a matter of interest that when the rate for the last year of the sexennium (.5) is compared with that for the first year (.2) it is seen that there has been an apparent increase of 150 per cent. As a matter of fact, however, this rise is only apparent and is due, in large part, to the constantly increasing care which physicians are exercising in reporting primary causative factors on forms provided for statements of causes of death. The reports for the general population show an even greater *apparent* increase in the death rate for gonococcus infection. For the year 1916 the general population death rate was .8 per 100,000 population, which is double the rate for 1911 (.4) and eight times the annual average rate for the period 1901 to 1905 (.1). It is evident that published figures for this disease can not be taken as a reliable index of its incidence as a cause of death.

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[1] See Appendix C.

Anemia, Chlorosis.

One thousand seven hundred and seventy-two (1,772) deaths were charged to these diseases during the sexennium 1911 to 1916. The great majority were reported under one of the following expressions: anemia (without qualification), Banti's disease, chlorosis, pernicious anemia, and splenic anemia. The International List of causes of death does not provide for the separate tabulation of these several types. Indeed, the title itself is unsatisfactory; the term "anemia" is very vague and is used very loosely indeed; so much so, that it is probable that many fatal cases so diagnosed would not be reported under this title heading if blood examinations had been made. In many cases the deaths here tabulated result either from acute or chronic secondary anemias, and if all of the data for correct classification had been at hand, they would, doubtless, have been assigned to many other causes, prominent among which are malarial fever, rheumatic fever, syphilis, malignant growths, the autogenous poisonings resulting from various chronic diseases, and indeed in some cases, to traumatic agencies.

It will, therefore, be understood that the title "anemia, chlorosis" relates only in part to proved fatal cases of the two forms of primary or essential anemia known as chlorosis and pernicious anemia.

It will be noted that in the Metropolitan Industrial experience there has been little change in the death rate during the six year period 1911 to 1916. A slight upward trend is shown. This corresponds with the general population experience as shown by the Census Office reports on mortality statistics.

"Other Chronic Poisonings."

Only 164 deaths were charged to this title (No. 59 of the International List of Causes of Death) during the period 1911 to 1916. These deaths were cases reported as due chiefly to chronic morphinism, opium poisoning and cocainism. It should be understood that the chronic occupational poisonings are not classified here; nor are any of the acute poisonings, whether occupational or not. The chief interest in the figures attaches to the fact that during the first four years of the sexennium there was little change in the death rate. In 1915, however, there was a considerable increase, but in 1916 the death rate dropped very materially. This corresponds with the general population experience, and it may be presumed that the very pronounced decrease in the death rate in 1916 was due to the enforcement of legislation covering the sale of habit-forming drugs.

Encephalitis.

Under this vague and indeterminate heading, 519 deaths were classified. This corresponds to a death rate of 1.0 per 100,000 exposed. There has been a steady downward trend in the mortality charged to this disease throughout the period and the rate for the final year, 1916 (.8), represents an apparent decline of 33⅓ per cent. from that for the first year, 1911 (1.2). This apparent decline should be construed as having very little significance other than to serve as an evidence of the increasing accuracy with which causes of death are being reported year after year. Without question many deaths are being added to the totals classified as due to tuberculous meningitis and to the various forms of violence on account of the growing tendency to specify the primary factor in cases of terminal encephalitis. This downward trend in the apparent death rate is also seen in the experience of the expanding Registration Area.

Meningitis.

Four thousand one hundred and seventy-one (4,171) deaths were classified under "meningitis" during the period 1911 to 1916. This title, unfortunately, is a composite one and includes not only the condition known as "simple meningitis," which is usually a terminal condition in other primary diseases, but also the epidemic cerebrospinal type which is an infectious disease. Of the 4,171 deaths, 3,348 were returned as due to the former group of conditions such as "simple meningitis," "meningitis," without further qualification, "cerebral meningitis," "spinal meningitis," and 823 deaths were reported as due to cerebrospinal fever.

The statistical tabulation of deaths returned under the first group is hardly worth while, because such reports are but partial reports, and as such, figures relating to them are bound to be misleading. Experience and tests have shown that over three-fourths of the deaths returned in this manner were really primarily due to other conditions, chief among which are tuberculous meningitis, syphilis, cerebrospinal fever and diseases of the ears. The 3,348 deaths just referred to represent cases in which it was not possible to secure information either as to the type of "meningitis" or the name of the disease or form of violence of which it was a sequela.

Cerebrospinal Fever.—The chief interest in the study of meningitis statistics is centered on the 823 deaths relating to cerebrospinal fever, or to epidemic cerebrospinal meningitis as it is often called. This is an acute infectious disease caused by an organism known as the *diplococcus intracellularis meningitidis.* While it is marked by fever and by inflammation of the cerebral and the spinal meninges, its place in a statistical classification should be among the specific infectious diseases rather than among those of the nervous system, where it is at present placed.

In the first year of the sexennium to which this report relates, no effort was made to segregate the deaths from this disease. The two tables which follow relate, therefore, to a quinquennial period, 1912 to 1916. The first of these tables, which is given immediately below, shows the sex, color and age distribution of the mortality among the insured for this period.

TABLE 174.

MORTALITY FROM CEREBROSPINAL FEVER, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Death Rates per 100,000 Persons Exposed. 1912 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Age Period.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
All ages—one and over..........	1.8	2.1	1.2	3.8	2.4
1 to 4......	7.2	8.0	6.3	9.2	6.9
5 to 9......	2.6	2.4	2.1	7.3	4.9
10 to 14.....	1.8	1.6	1.3	4.9	4.8
15 to 19.....	1.7	2.4	.7	5.0	1.7
20 to 24.....	1.1	1.0	.8	3.5	1.9
25 to 34.....	.8	.8	.5	2.7	1.3
35 to 44.....	.7	.7	.4	1.6	1.5
45 to 54.....	.8	.9	.2	3.4	2.1
55 to 64.....	.3	.4	.1	.7	1.6
65 to 74.....	.4	.3	.6	—	—
75 and over..	—	—	—	—	—

There were 823 deaths either originally reported or finally identified in our experience during the quinquennium 1912 to 1916 as due to cerebrospinal fever. Over one-third of these were deaths of children 1 to 4 years of age; over one-half were under 10 and about two-thirds under 15. The mortality for males in both the colored and white experience was very considerably in excess of that for females and for each sex the death rate for the colored experience was heavily in excess of that for the white.

The following table shows the trend of the death rate for cerebrospinal fever during the quinquennial period 1912 to 1916. It will be noted that the decline was a continuous one for the first four years of the quinquennium, that is, from a maximum of 3.0 per 100,000 exposed in 1912 to a minimum of 1.3 in 1915. This was followed by a slight increase to 1.5 in 1916. The experience for the insured corresponds fairly well with that for the general population except that for 1916 the latter, with a rate of 2.1 per 100,000 population, shows more of an excess over the 1915 rate than is in evidence for the corresponding year in the Metropolitan experience.

TABLE 175.

MORTALITY FROM CEREBROSPINAL FEVER, CLASSIFIED BY COLOR AND BY SEX.

Death Rates per 100,000 Persons Exposed. Single Years in Period 1912 to 1916.

Experience of Metropolitan Life Insurance Company. Industrial Department.

Year.	Persons.	White.		Colored.	
		Males.	Females.	Males.	Females.
1912 to 1916......	1.8	2.1	1.2	3.8	2.4
1916.......	1.5	1.9	1.2	2.0	1.4
1915.......	1.3	1.8	1.1	.9	.8
1914.......	1.5	1.8	1.1	2.7	1.1
1913.......	1.7	1.8	1.4	3.4	2.3
1912.......	3.0	3.1	1.5	10.4	6.6

*Locomotor Ataxia.**

The most important causative factor in locomotor ataxia is syphilis, and, in fact, some of the best authorities now say that the disease never originates without syphilis. On this account deaths certified as due to locomotor ataxia should be considered in relation to syphilis, and in Appendix C there will be found quotations of the number of deaths charged to syphilitic infection in which it had been definitely certified by physicians that the syphilitic origin of locomotor ataxia had been attested by

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* See also syphilis, page 237.

Wassermann reactions. On account of the growing tendency of physicians to certify primary causes, and on account of the practise among some statistical offices of requesting physicians to certify definitely to the luetic origin of deaths ascribed to locomotor ataxia, the death rate for locomotor ataxia is showing an apparent decline. This decline has been continuous in the present experience for insured wage earners throughout the last four years of the six year period covered by this report. This is not in agreement with the death rates shown for the expanding Registration Area in which for four of the six years there was no change. There was a decline, however, from 2.6, the 1915 rate in the general population, to 2.4 per 100,000 population in 1916. The Registration Area death rates are considerably higher than those for the insured. This is accounted for, in part, by the age distribution of the two populations. Well over one-third of the deaths from the disease occurs in the higher age periods where the policyholders do not comprise a very high proportion of the total number insured.

Softening of the Brain.

Under this heading, 488 deaths of Industrial policyholders were classified during the six year period 1911 to 1916. The death rate for the period was .9 per 100,000 exposed. Examination of the apparent trend of the death rate shows a practically continuous downward trend during the six years and the rate for 1916 (.7) is 58.3 per cent. of that for 1911. Softening of the brain is an extremely unsatisfactory statement of cause of death in that it is a secondary condition rather than a primary cause. This explains the apparent downward trend in the mortality which the figures for the years of the sexennium show. The fact is that in the later years registration offices have been querying this return, with the result that many deaths originally certified as due to softening of the brain have been registered, instead, under arteriosclerosis, embolism, thrombosis, and other diseases, as a result of more definite information so secured. The apparent decrease shown for the insured group corresponds to that shown for the general population.

General Paralysis of the Insane.

Two thousand two hundred and twenty-four (2,224) deaths of Metropolitan Industrial policyholders were classified as due to this disease during the six year period, 1911 to 1916. The death rate was 4.1 per 100,000 exposed. In view of the fact that the antecedent cause of general paralysis of the insane is now believed by the best authorities to be syphilis, a separate statistical treatment of the mortality from general paralysis is of little value. It has been decided, therefore, to treat it in connection with the study of syphilis, page 237. When this condition is reported jointly with syphilis, the death is classified as one primarily due to the latter, but very frequently indeed, physicians simply report "general paralysis of the insane," "dementia paralytica," "paresis," or "general paralysis" without stating specifically that these conditions occurred as the result of initial syphilitic infection. Since the International List of Causes of Death provides a separate title for general paralysis of the insane we have (in keeping with standard practise) classified under general paralysis all deaths in which syphilitic origin was not definitely stated by physicians, *except* that in very many cases letters of inquiry were sent to physicians asking them whether they had knowledge of the existence of syphilis as a predisposing cause and, if so, whether its presence was shown by history or by tests. The replies in a great many instances gave us information on the strength of which many deaths originally certified as due to general paralysis of the insane were ultimately classified under the heading of syphilis.

Analysis of the apparent trend of the death rate among the Company's policyholders shows a very pronounced decrease for general paralysis of the insane. The death rate for 1916 (2.7 per 100,000 exposed) is less than half that for 1911 (5.7) and with one exception there was a continuously declining death rate throughout the period 1911 to 1916. The declining rate shown for the Metropolitan experience is in marked contrast to the increasing mortality shown by the reports of the Census Bureau for the expanding Registration Area of the United States throughout the same period. It was not the custom in the Census Bureau during the period 1911 to 1916 to query reports of general paralysis for specific statements of the existence of syphilis.

The color and sex incidence of the death rates for general paralysis of the insane is about the same as for syphilis. The death rates for males exceed those for females in the colored as well as in the white experience, and the rate for colored persons is very much higher for each sex than that for the whites.

Convulsions.

Five hundred and fifty-nine (559) deaths were charged to "convulsions" in this experience. The International List of Causes of Death devotes two title headings to this subject, one of which is confined to deaths of children under 5 years of age and the other to persons 5 years of age and over. The 461 deaths of children under 5 years classified under this cause are assigned thereto only in cases where it was impossible to secure more definite information which would justify the inclusion of such deaths under more definite and satisfactory statistical headings. Convulsions in young children represent a symptom-complex of some other condition—in the majority of cases such diseases as diarrheal complaints, the pneumonias, and the several forms of meningitis. Only 98 deaths of persons 5 years and over were charged to convulsions during the six year period. These also represent cases which were assigned to this title only when it was not possible to obtain definite data which would justify their classification elsewhere. When such information is obtained, these deaths are usually transferred, in cases of women of childbearing age, to puerperal causes, and in adult males to the various nervous diseases or to some form of traumatism.

The death rate for convulsions is declining, which is a manifestation of improvement in statements of cause of death rather than an indication of changed condition as to the incidence of fatal cases of "convulsions."

"Other Diseases of the Nervous System."

Under this heading of the International List of Causes of Death are classified a very considerable number of nervous diseases which are not covered statistically by any other title relating to the various diseases of the nervous system and the organs of special sense. The title, therefore, is a residual one and many of the diseases listed under it are so dissimilar to others so listed, that the only relationship lies in the fact that they all affect the nervous system. Under this heading the following, chiefly, were reported as causes of death: acute hydrocephalus, anemia of brain, cerebral tumor, cretinism, disease of brain (nature not specified and unobtainable on inquiry), idiocy, imbecility, Jacksonian epilepsy, nervous exhaustion, nervous prostration, neurasthenia, sclerosis of brain, tetany and a few others. Many of the diseases listed under this title are really of syphilitic, or more or less remote traumatic, origin. These deaths would have been so classified if accurately reported. The death rate from this group of causes in the present experience shows a slight downward trend. This is due to increasingly specific statements of cause of death resulting from the widespread campaign carried on by practically all registration offices with a view to securing accurate reports from physicians. The tendency in the expanding Registration Area is also a downward one, which is attributable, doubtless, to the same cause.

The number of deaths recorded under this residual title during the period 1911 to 1916 was 1,349, corresponding to a death rate of 2.5 per 100,000 exposed.

Diseases of the Ears.

In the great majority of the fatal cases of ear disease otitis media is the primary factor. There were 962 deaths charged to ear diseases in the Metropolitan Industrial experience during the period 1911 to 1916. The death rate was 1.8 per 100,000 exposed. The prevailing rate throughout the years of the sexennium has changed very little from year to year. This corresponds with the experience in the expanding Registration Area of the United States, although in the latter experience group the rate in recent years has been much higher than in the years covering the first quinquennium of the present century. There has not been an actual increase in the fatal cases of ear disease, probably, to the extent indicated by these rates. On the other hand, hundreds of physicians who, in earlier years would have certified fatal cases of otitis media as due to the terminal condition, meningitis, have been returning such cases in more recent years, under the stimulus of educational propaganda, as "otitis media."

Pericarditis.

Under this heading the deaths of 624 Metropolitan Industrial policyholders were recorded during the period 1911 to 1916. The corresponding death rate was 1.2 per 100,000 exposed. The trend of the death rate is downward. In 1911 the rate was 1.4, in 1912 and 1913 it was 1.3 and for each of the three remaining years of the sexennium it was 1.0 per 100,000. The apparent downward trend of the death rate in the Metropolitan experience corresponds fairly well to that in the Registration Area. Probably the decline in each experience is more *apparent* than real. Secondary pericarditis is, more and more, being recorded under the primary infection. The disease is usually the result of pyogenic infection or it arises by extension of inflammation from contiguous organs. As a primary condition it is extremely rare. It is caused, in addition to the lesions noted above, by rheumatism, traumatism, and indeed in some cases, by tuberculosis. The more frequent mention of primary rheumatic fever and other causative factors on forms provided for reporting causes of death is perhaps the chief factor in the apparent decline of the pericarditis death rate.

Under this heading are also classified certain other diseases of the pericardium, namely, hydropericardium, hemopericardium and pneumopericardium.

Acute Endocarditis.

Under this heading are classified first, all deaths reported definitely as caused by acute endocarditis or acute myocarditis; second, all deaths of persons under 60 years of age for whom "endocarditis" (without qualification) or "myocarditis" (without qualification) were returned as the cause of death; third, cases of infective endocarditis, malignant endocarditis and septic endocarditis reported with no additional information as to primary causative factors. The title heading "acute endocarditis" as used in the International List of Causes of Death is a distinct misnomer, since under this title are classified also deaths from myocarditis which is an inflammation of the myocardium or muscular walls of the heart, whereas endocarditis is an inflammation of the endocardium or lining membrane of the heart. A better title heading for the conditions included here would be *acute infectious endocarditis and myocarditis.*

Nevertheless, 5,080 deaths of Metropolitan Industrial policyholders were classified under this heading during the sexennium 1911 to 1916. The death rate for the period was 9.4, and although there has been no pronounced change from year to year, there has been a slight upward trend in the rate. The annual average for the last three years of the six year period is much higher than that for the first three years. This is difficult to account for in view of the fact that for almost all of the other unsatisfactory and indefinite titles we have observed a tendency toward an apparent decrease in the death rate. This title is unsatisfactory because instances are very rare indeed in which acute endocarditis occurs as a primary disease. Consequently, whenever it is reported without statement of any other morbid condition, the presumption is that the name of the etiological entity which was responsible for this condition was not mentioned by the physician. In the expanding Registration Area of the United States since 1911 there has been a slight upward trend also in the death rate for acute endocarditis. Knowing as we do that we should expect the opposite trend in common with that for other indefinite statements, the reason for the increase in the rate must be sought elsewhere. It is possible that the number of forms of the disease which are encountered as primary factors is actually increasing. This may be true especially of cases in which malignant or infectious endocarditis is in evidence as a primary disease of the heart lining or valves. However this may be, we are face to face with the situation that this is almost an isolated instance of an apparent increase in the death rate for an unsatisfactory title.

Embolism and Thrombosis.

Under this heading are classified reports of embolism and of thrombosis which appear with no statement as to primary cause. It should be distinctly understood, however, that deaths from puerperal embolism and from embolism due directly to postoperative conditions are not classified under this heading, but in the first instance under the puerperal state, and in the second under the title representing the cause for the relief of which the operation was performed.

One thousand one hundred and ninety-two (1,192) deaths were classified as due to embolism and thrombosis in this experience during the period 1911 to 1916. The corresponding death rate was 2.2 per 100,000 exposed. The general trend of the mortality throughout the period has been upward. There has been no pronounced change, however. The same trend is observed in the figures for the expanding Registration Area during the corresponding period. In the Metropolitan experience the death rate for the colored exposure for the period as a whole (2.7) was in excess of that for white policyholders (2.1); the rate for white females (2.4) was higher than that for white males (1.8); for colored lives, however, the mortality among males and females was about the same, namely, 2.8 for the former and 2.7 for the latter.

Diseases of the Larynx.

The greater part of the 594 deaths which were classified under this heading during the period 1911 to 1916 were reported either as due to laryngismus stridulus, laryngitis, edema of glottis or spasmodic croup. The death rate for the period was 1.1 per 100,000 exposed and the general trend throughout the sexennium has been slightly downward. This is also true of the expanding Registration Area experience. It frequently happens that deaths reported by physicians under the several terms classified under "diseases of the larynx" represent cases which were actually of diphtheritic origin. This applies particularly to deaths reported from "laryngitis" which were caused *actually* by diphtheritic, fibrinous, membranous or pseudomembranous laryngitis, but which were not so stated in the original return of the physician. Much of the apparent decline in the death rate for diseases of the larynx is doubtless due to the growing tendency of the medical profession to give more explicit statements of these causes, thus enabling statistical offices to classify them as deaths caused by diphtheria.

Pulmonary Congestion, Pulmonary Apoplexy.

Under this heading 939 deaths of Metropolitan Industrial policyholders were classified during the period 1911 to 1916. The death rate for the sexennium was 1.7 per 100,000 exposed and the apparent trend, as shown by the figures relating to each year of the period, is distinctly downward. The same apparent downward trend is in evidence for the figures relating to the general population. In fact, it is more pronounced in the latter group than for the insurance experience.

"Pulmonary congestion, pulmonary apoplexy" is an extremely unsatisfactory title from the standpoint of mortality statistics, because the terms listed under it stand for conditions which are, almost altogether, mere complications or terminal symptoms of other diseases. It is, as a matter of fact, unfortunate that the rather considerable bulk of deaths reported in this way should become a part of the grand total recorded as due to diseases of the respiratory system. Many of these reports are received for cases in which the return is "pulmonary edema" or "pulmonary congestion," and in which these conditions were terminal to cases of cardiac, renal or other diseases. The apparent decline in the death rate both among the insured group and in the general population experience is accounted for largely by better certification of primary diseases.

The great majority of the deaths charged to this title were reported as due to pulmonary apoplexy, pulmonary congestion, pulmonary edema, hypostatic pneumonia and terminal pneumonia.

Asthma.

Under this title were classified the very considerable total of 1,594 deaths during the sexennium 1911 to 1916. This corresponds to a death rate of 3.0 per 100,000 exposed. There has been a continuous decline in the rate throughout the years which constitute the period covered by this experience. The rate for the final year, 1916 (2.5), represents a decline of 30.6 per cent. from that shown for the earliest year, 1911 (3.6). This decline is not in evidence in the published figures for the general population, for which an almost uniform death rate is exhibited throughout the sexennium. The apparent decline shown in the figures for the insured group is due, in considerable part, to the rather rigid censorship exercised concerning reports of "asthma" from the mining districts, with the result that many of these returns have been identified as relating to cases of miners' asthma. These deaths are classified under another title of the International List of Causes of Death. A number of these reports, moreover, would have been classified as cardiac asthma and assigned to organic diseases of the heart, and still others would have been assigned to Bright's disease as cases of renal asthma, if strictly accurate returns had been made. The deaths, therefore, which go to make up this total of 1,594 fatal cases represent, for the most part, reports of "asthma," without qualification, and also returns of "bronchial asthma" concerning both of which no additional data were available. The title is very unsatisfactory because it is intended to be limited to the disease known as bronchial or spasmodic asthma. Unfortunately the term "asthma" is used loosely by physicians in other conditions associated with dyspnea. In the Metropolitan experience the death rate for the colored exposure (6.0) is more than double that for white persons (2.5). There is no marked sex incidence shown among the insured.

"Other Diseases of the Respiratory System."

Under the above heading are classified a considerable number of terms which are not assignable to any of the diseases of the respiratory system for which a separate statement of mortality is provided in the International List of Causes of Death. It is known as a "residual" title, and like all others of this kind, it provides for the classification of a number of vague and indeterminate reports.

It should be understood that tuberculous conditions, if known, are not classified under this title heading. In the Metropolitan experience the majority of the deaths classified here were reported as follows, there being no further definitive data available: abscess of lung, chronic pneumonia, "disease of lung," hemoptysis, hemorrhage of lung, interstitial pneumonia, miner's asthma, and pneumokoniosis.

Under this heading 888 deaths of Metropolitan Industrial policyholders were registered during the period 1911 to 1916, corresponding to a death rate of 1.7 per 100,000 exposed. Comparison of the death rates for the several years constituting the six year period shows a marked downward trend, to which no significance whatever should be attached except as an evidence of the increasing accuracy of reporting causes of death and of the greater care with which these reports are inspected from year to year. The result is that reports of the very vague and indeterminate conditions listed under this title are being to a greater extent, year after year, transferred to more specific and satisfactory headings. This apparent downward trend in the death rate is also shown in the Census reports covering the mortality of the general population.

Diseases of the Pharynx.

One thousand one hundred and fifty-three (1,153) deaths of Industrial policyholders were reported from diseases of the pharynx during the six year period 1911 to 1916. The death rate for the sexennium was 2.1 per 100,000 exposed. The general trend of the mortality among the insured during the sexennium was upward. This was practically continuous. The minimum was shown for the earliest year, 1911 (1.6), and the maximum for the latest year, 1916 (2.6). The same rising tendency of the death rate is shown by the figures for the general population. There was no pronounced color incidence in the Metropolitan experience although the rate for colored policyholders (2.4) exceeded slightly that for the white (2.1). The number of deaths of colored persons involved, however (159), was rather too small to be significant. Among the white insured the death rate for males (2.5) exceeded that for females (1.7); among the colored policyholders the rate for the females (2.6) was, on the other hand, higher than that for males (2.1).

The greater part of the deaths charged to diseases of the pharynx were reported as follows: "disease of throat," Ludwig's angina, pharyngitis, quinsy, tonsillitis, or Vincent's angina.

"*Other Diseases of the Stomach* (*Cancer Excepted*)."

The very considerable total of 4,921 deaths of Industrial policyholders was reported as due to the various diseases and conditions which must be classified under the above title heading according to the stipulations of the International List of Causes of Death. This number of deaths corresponded to a death rate of 9.1 per 100,000 exposed. There has been a continuous decline, however, throughout the six years covered by this report, from a maximum of 11.0 for 1911, the earliest year, to a minimum of 7.6 for 1916, the latest one. An even more pronounced downward trend has been shown by the figures for the general population during the same period. The apparent decrease in the death rate is due to more accurate reporting of causes of death in the later years as compared with the earlier ones, together with more rigid questioning of the reports on the part of registration offices.

Under this title are listed such terms as: gastritis, gastric catarrh, "disease of stomach," "acute indigestion," "indigestion" and a number of others which, as a rule, are worse than worthless as statements of the primary cause of death. These terms are used carelessly when they relate to various fatal affections in which inflammation or irritation of the stomach is a complication. Deaths so reported are found on investigation, very frequently, to be chargeable to such conditions as alcoholism, organic heart disease, gastric ulcer, gastroenteritis, and other diseases and conditions rather than to the above title. As is apt to be the case with these residual titles, where careless and incompetent reporting of cause of death is so important a factor in influencing the death rate, the rate for colored policyholders is very greatly in excess of that for whites. In the Metropolitan experience the actual number of deaths of colored persons assigned to "other diseases of the stomach" was 1,563 with a corresponding death rate of 23.3 per 100,000 exposed. There were 3,358 deaths of white insured with a rate of 7.1 or less than one third the rate for the colored. There was no marked difference in the rates for males and females among the whites, the rate for the former being 6.9 and for the latter 7.3. Among the colored policyholders, however, the mortality among the females was considerably in excess of that among the males (25.6 as compared with 20.6).

The terms which follow will indicate the manner in which the majority of the deaths charged to this title were reported in the Metropolitan experience. It should be understood that in each case no further information was available on the basis of which it could be classified under a more definite and satisfactory title: abscess of stomach, catarrh of stomach, catarrhal gastritis, congestion of stomach, "disease of stomach" (unqualified), dyspepsia, gastritis, hemorrhage of stomach, indigestion, acute indigestion, and pyloric stenosis (noncancerous or unqualified). Although it is plainly indicated in the title heading that cancer of the stomach is not included here, it is, perhaps, well to emphasize the fact by restating it and to direct attention to Title No. 40 (cancer and other malignant tumors of the stomach and liver) under which deaths from malignant gastric growths are classified. It is possible only to speculate as to how much unrecognized cancer is concealed under the title "other diseases of the stomach."

Biliary Calculi.

Under the above title were classified 1,591 deaths in the Metropolitan Industrial experience during the six year period 1911 to 1916. The corresponding death rate was 3.0 per 100,000 exposed. A very slight upward trend was shown throughout the six year period. This same upward trend was shown for the general population experience. In both experiences it is accounted for, in all probability, by increasing precision in statement of causes of death rather than by any actual increase in deaths caused by biliary calculi. For this disease the death rate of white persons is considerably higher than that for the colored, while the rate for females in both the white and colored experiences is very much higher than for males. White females show a death rate of 4.9 per 100,000 exposed for the period 1911 to 1916, which is almost five times that for white males (1.0); for the colored the female rate (2.4) is double that for the males (1.2).

The greater part of the deaths charged to biliary calculi were reported in the Metropolitan experience under the following terms: biliary calculus, biliary colic, cholelithiasis, and gall stones.

"Other Diseases of the Liver."

Under this heading the very considerable total of 2,181 deaths were classified during the sexennium 1911 to 1916. The death rate was 4.1 per 100,000 exposed for the period. Included here are the various noncancerous, nontuberculous and nonsyphilitic hepatic and gall-bladder affections for which the International List of Causes of Death does not provide a separate classification. The causes of death assigned to this title were reported, in the main, as follows: abscess of liver, atrophy of liver, cholemia, cholangitis, cholecystitis, disease of liver (unqualified), hepatitis, hypertrophy of liver, icterus, and jaundice.

There has been a fairly consistent decline in the death rate throughout the period covered by this report. A similar downward tendency is shown in the reports covering the mortality for the general population experience although the downward trend there is not as marked as that shown for the insured. In each case the decline in the death rate is doubtless due more to increasing accuracy in reporting than to any change in conditions covering actual fatal cases resulting from the diseases classified under this title. In the Metropolitan experience the colored exposure shows a death rate considerably in excess of the white. The sex incidence, however, is different for the two races. Among white insured wage earners the rate for females was 4.4 per 100,000 exposed, as compared with 3.0 for white males. Colored lives, however, show a higher rate for males (6.4) than for females (5.8).

Simple Peritonitis (Nonpuerperal).

Under this very unsatisfactory heading 1,013 deaths were reported in the Metropolitan experience during the six year period

1911 to 1916. The death rate was 1.9 per 100,000 exposed. It is desired at this point to emphasize the fact that no case was classified under this heading until every possible effort had been made to ascertain the primary cause of the "peritonitis." Experience shows that a very large majority of the deaths which physicians certify as due to "peritonitis" are, in fact, primarily caused by *tuberculous* peritonitis, appendicitis, traumatism, and both nonpuerperal and puerperal diseases of the female genitals. Primary, idiopathic peritonitis is rare and each report of "peritonitis" is a suspicious one for which vital statisticians usually seek a correction before tabulating the death under this heading. The 1,013 deaths charged to this title, therefore, represent, in the main, a residue of those originally certified as caused by "peritonitis" and concerning which no more definite information could be obtained. No significance is to be attached to the declining death rate shown for the insured in the later years covered by this report as compared with the earlier ones. The decline registers simply the increasing tendency to report cases complicated by peritonitis under the primary cause rather than under the terminal symptom. A corresponding *apparent* decline in the death rate of the general population is shown in the reports covering its mortality. The decrease is traceable, to a very great extent, to the same cause. Colored lives show a mortality more than triple that in evidence for the whites (4.7 per 100,000 exposed as compared with 1.5). In the white experience the rate for females (1.9) is nearly double that for males (1.0); in the colored experience the mortality assigned to this cause for females was 6.6, which is almost treble that for colored males (2.4).

Acute Nephritis.

Numerically, acute nephritis is an important cause of death in the Industrial experience of the Metropolitan Life Insurance Company, no less than 5,120 deaths having been charged to it during the sexennium 1911 to 1916. The corresponding death rate was 9.5 per 100,000 exposed. This is another one of the causes of death for which the International List provides a separate title heading, but which by no means constitutes a satisfactory statement of cause of death. In the majority of deaths in which acute nephritis is a factor, it is a secondary condition. When it appears as the sole statement of cause of death the report is always more or less suspicious, the strong presumption being that the primary causative factor has been omitted in the statement of the physician. Among the principal causes of acute nephritis are exposure to cold, as well as typhoid fever, malaria and syphilis. Acute poisonings also often bring on this disease. Whenever it is reported, without qualification, in connection with the death of a woman of child-bearing age it is more than probable that the death is one that should, in reality, be classified under the head of those due to puerperal causes. In children it is a frequent complication of the acute contagious or infectious diseases such as scarlet fever, measles, diphtheria and even chicken pox. The 5,120 fatal cases which are here ascribed to this disease represent a mere residue of those originally reported as having been caused by "acute nephritis." During the latter half of the experience period particularly, there has been rigid inspection of such reports and many letters of inquiry for the primary cause have been sent out to physicians. The replies which have been received together with the growing tendency to report primary conditions are, more than any other factors, responsible for the decline in the death rate which is shown when comparison is made of the rates for the first three and the last three years of the sexennium, 1911 to 1916. A similar *apparent* decline in the death rate is shown by the published figures for the general population; but this decline, like that for the Metropolitan Industrial experience, evidenced better reporting and improved methods of compiling causes of death rather than an actual decrease in the number of cases in which "acute nephritis" was the primary cause of death.

On the basis of the 5,120 deaths that remain registered under this cause, the death rate for the colored exposure (17.9 per 100,000 exposed) was more than double that for the whites (8.3). For white insured lives the mortality among males (9.2), was considerably higher than that for females (7.6). Among colored lives, however, there was little difference in the rates for the sexes, 18.0 for males, as compared with 17.8 for females.

"Other Diseases of the Kidneys."

Eight hundred and sixty-one (861) deaths of Industrial policyholders were charged to "other diseases of the kidneys" during the period 1911 to 1916. This corresponds to a death rate of 1.6

per 100,000 exposed. No pronounced change is shown for any year of the period as compared with other years, the death rate being fairly stationary. This is also true in the general population experience, although the death rate for this group of diseases is slightly higher in the general population than among the insured. Comparison of color and sex rates among the policyholders shows that the mortality in the colored exposure, 2.4 per 100,000 exposed, was rather in excess of that for the white group (1.5). For white lives, however, the death rate for females (1.6) was a little higher than that for males (1.4); this is contrary to the experience in the colored exposure, for which the male rate was 2.8 as compared with 2.0 for the females.

Diseases of the Bladder.

Under this heading 611 deaths of Metropolitan policyholders were classified during the period 1911 to 1916. The death rate for the period as a whole was 1.1 per 100,000 exposed; a fairly continuous downward trend is in evidence throughout the period. It should be stated that this title does not include cancer of the bladder, tuberculosis of the bladder, bladder conditions of gonococcic origin, nor vesical calculus. A decline in the death rate as shown for the Metropolitan experience is also in evidence, and even more pronounced, in that of the general population. This is due to the change of many reports to the titles that relate to gonococcus infection, to diseases of the prostate, and to cancer and tuberculosis. The great majority of the fatal cases classified under this title were reported as due to cystitis, retention of urine, rupture of the bladder, tumor of the bladder (noncancerous or unqualified) and abscess of the bladder. The rate for colored lives (2.2 per 100,000 exposed) is more than double that for white lives (1.0) and for both the colored and the white experiences the death rate for males was about three times that for females.

Diseases of the Prostate.

The diseases of the prostate gland, exclusive of those certified as due to tuberculous, cancerous, syphilitic, or traumatic causes, were reported as causes of 1,162 deaths among Metropolitan Industrial policyholders during the sexennium to which this report relates. The corresponding death rate was 2.2 per 100,000 exposed. There was no pronounced variation during the six year period. The rate for the period as a whole and for each of the several years which constitute it, is lower than that for the general population. This is due to the fact that a very great majority of the deaths caused by prostatic troubles are those of men in the higher age groups. Ordinarily, very close to 90 per cent. of the mortality from these diseases is among men over sixty years of age. On account of the comparatively low exposure among the insured at these ages, a higher death rate is to be expected in the general population experience. The mortality among colored men for the six year period was 7.7 per 100,000 exposed, which is almost double the rate for the white insured (4.3).

Uterine Tumor (Noncancerous).

Under this heading are classified all uterine growths which are not reported as due to cancer. The number of deaths charged to this cause in the Metropolitan Industrial experience during the sexennium 1911 to 1916, was 1,335, corresponding to a death rate of 2.5 per 100,000 exposed. Little change is shown throughout the period when the rates for the individual years are compared. The death rate in the general population experience is lower for each year of the period, but, like that for the insured, there is little fluctuation from year to year. The great bulk of deaths charged to this condition occurred between the ages of 25 and 55 years—in fact, 1,103 or 82.6 per cent. of the 1,335 deaths were those of women in this age group. The difference in the rates for the Metropolitan and the expanding Registration Area experience is accounted for largely by the different race composition of the two populations. The death rate among colored women is much higher than among the whites—over six times as high; the rates for the two races being 17.3 and 2.7 per 100,000 exposed respectively. The proportion of colored policyholders to the total number of policyholders is far greater than the proportion of the colored population of the expanding Registration Area is to its total population. We would, therefore, expect a higher death rate among the insured.

"Other Diseases of the Uterus."

Under this heading are classified deaths actually caused by noncancerous, nontuberculous and nonpuerperal diseases of the uterus, together with certain others which, if correctly certified, would have come under cancer, tuberculosis, or puerperal causes. The latter group are placed under the unsatisfactory title, "other diseases of the uterus" because all of the information which physicians might have given did not appear in their statements. The deaths classified under this heading were returned, in the main, under one of the following designations: abscess of uterus, disease of uterus (with no further qualification), endometritis, inflammation of uterus, menopause, metritis, pelvic abscess, pelvic cellulitis and prolapse of uterus.

There were 786 such reports during the period 1911 to 1916, corresponding to a death rate of 1.5 per 100,000 exposed. Rather a pronounced *apparent* downward trend is shown, which means that the growing tendency to make full and complete reports has brought about more certifications under the head, chiefly, of diseases incidental to pregnancy and childbirth.

Salpingitis, Other Diseases of the Female Genital Organs.

One thousand seven hundred and eighty-two (1,782) deaths of insured women were classified under this heading during the period 1911 to 1916. The death rate was 3.3 per 100,000 exposed, and there was very little variation throughout the sexennium. Comparison with the figures for the general population shows that, while the death rate for the latter was the lower, the same absence of any material fluctuation from year to year is to be observed. The comparatively high death rate among insured women is due, largely, to the fact that there is a higher proportion of colored women among them. In the experience for the insured, the mortality among colored women from these diseases has been about four times that for the whites. Practically 90 per cent. of the deaths are those of women between the ages of 20 and 50 years.

Under this heading are classified all deaths caused by the nonvenereal, noncancerous, nontuberculous, and nonpuerperal diseases of the female genital organs for which separate headings are not provided by the International List of Causes of Death. The great majority of the deaths classified under this heading were reported under one of the following terms: abscess of Fallopian tube, abscess of ovary, disease of genital organs (unqualified), disease of ovary (unqualified), disease of Fallopian tube (unqualified), inflammation of Fallopian tube, inflammation of ovary, ovaritis, pus tube, pyosalpingitis, rupture of tube, salpingitis, and tubo-ovarian abscess. A large number of these were, undoubtedly, either of gonococcic or puerperal origin. They were not so defined by physicians, however, and the 1,782 cases classified under "salpingitis, other diseases of the female genital organs" are those which could not be definitely identified as deaths primarily due to gonorrhea or to puerperal causes.

Gangrene.

Under this very unsatisfactory heading 681 deaths of Metropolitan Industrial policyholders were classified during the six year period 1911 to 1916. This corresponds to a death rate of 1.3 per 100,000 exposed. The death rate shows an apparent decline throughout the period. This is due, largely, to improving certification of causes of death whereby primary causative factors in cases of gangrene are being certified by physicians to a greater extent year after year. In consequence, deaths in which gangrene appears as a complication are being classified, more and more, under the diseases of which gangrene is a complication. The same apparent decline in the death rate is in evidence for the general population, and this decline is doubtless due to the same reason as that which is shown for the Industrial experience. The death rate for the general population is considerably higher, which is to be expected on account of the age distribution of the two populations, if for no other reason; for a very great majority of the deaths charged to this title are those of persons over 60 years of age, and this class does not constitute as great a proportion of the Metropolitan exposure as it does of that of the general population. Again, a report of "gangrene" is not accepted by the Metropolitan Statistical Bureau for classification, without investigation as to the primary cause. In consequence of this rather rigid censorship, a very considerable number of deaths originally certified as due to gangrene have been transferred to other titles, chief among which are diseases of the arteries, embolism and thrombosis, diabetes and many of the several titles which come under the general class heading "External Causes."

Old Age.

This is one of the most unsatisfactory title headings in the International List of Causes of Death. The several terms listed under this title, such as, "senility," "old age," "senile debility," "senile degeneration," "senile weakness" and others have too often been used in cases of old people who died of more or less well defined organic disease. Fortunately, however, this practice is steadily falling into disuse and the death rate for old age is seemingly declining. The decrease in the death rate in the Metropolitan Industrial experience is significant, therefore, only as it represents an improvement in the quality of the returns from year to year and in the censorship exercised in classifying causes of death. A similar decrease in the apparent death rate for old age is in evidence in the mortality reports for the general population and is to be attributed to the same causes. The published death rate has declined in the expanding Registration Area from 50.4 in 1900 to 17.0 in 1916.

Three thousand four hundred and eighty (3,480) deaths of Metropolitan Industrial policyholders were charged to this condition during the six year period 1911 to 1916; this corresponds to a death rate for the period of 6.5 per 100,000 exposed. The crude death rate for old age among the insured is, of course, much lower than that shown for the Registration Area, the obvious reason being the difference in the age distribution of the two populations. A much smaller exposure proportionately of old people is found among the insured. The death rate for colored lives during the period (8.9) is higher than that for white lives (6.1) and for each color class a higher death rate was reported for females than for males.

In this connection it is of interest to note that the decrease in the death rate for old age is responsible for a considerable part of the supposed increase in the death rates of some of the "degenerative diseases." The explanation is that the great majority of the deaths which, under conditions of five, ten, or fifteen years ago, would have been returned as due to "old age" or its synonyms, are now being reported by more careful physicians under such headings as cerebral hemorrhage, arteriosclerosis, organic heart disease, etc.

Ill-Defined Diseases.

Under this heading of the International List of Causes of Death are classified all reports which are not returned in such a way as to permit more satisfactory statistical assignment. The great majority of the deaths classified under this heading consists of cases in which either a complete diagnosis was not made or reported, or in which the cause of death was absolutely unknown or was returned as "unknown." In some instances there was no medical attendance. It should be definitely understood that none of the deaths classified under this title in this report was so assigned without every effort having been made to obtain a more definite report. Many hundreds of cases in which the vague and indeterminate expressions listed under this class were encountered in the original certifications of physicians and coroners were ultimately classified under more definite headings as a result of corrections made by those who gave the original reports. The general improvement in cause of death certification and the yearly growing number of these corrected returns are the sole explanations for the declining death rate which is in evidence for this class, both for the insured and for the general population.

The list which follows shows the manner in which the great bulk of the deaths charged to this class were reported: dropsy, cardiac syncope, "dropped dead," sudden death, asthenia, atrophy, biliousness, cachexia, cardiac asthenia, cardiac failure, cardiac paralysis, catarrhal fever, collapse, coma, complication of diseases, congestion, debility, decline, disappearance, dyspnea, "fever," "found dead," gastric fever, general debility, general weakness, heart failure, infection, inflammation, inquest pending, malnutrition, natural causes, "operation," paralysis of heart, postoperative shock, prostration, shock, surgical operation, surgical shock, "undetermined," "unknown," unknown disease, unspecified, and weakness.

It should be understood, moreover, that not all of the ill-defined diseases and conditions are classified here. The group simply covers the *worst* of the type. It will be well, in this connection, to read what is said about unsatisfactory reports of causes of death in the discussions on such subjects as meningitis, peritonitis, pneumonia, etc.

Five thousand four hundred and forty-eight (5,448) deaths of Industrial policyholders were charged to "ill-defined diseases" during the period 1911 to 1916; this corresponds to a death rate of 10.1 per 100,000 exposed.

SUPPLEMENT

SUPPLEMENT.

MORTALITY STATISTICS OF INSURED WAGE EARNERS DURING 1917.

It is possible at the present time to present a general statement on the mortality experience of the year 1917, although we can show only the facts for the combined experience without distinction for the color, sex and age classes. The death rate in the aggregate during 1917 was 11.61 per 1,000 exposed. This is based upon a total of 125,955 deaths and an exposure of 10,847,852 years of life. The mortality experience of 1917 according to causes of death, classified under the titles of the detailed International List, is displayed in Table 176, page 294.

The death rate from all diseases and conditions, combined, declined slightly in 1917 from the figure recorded for 1916; the rates being 11.61 and 11.68 per 1,000 persons exposed, respectively. The nine months of war in 1917 did not, therefore, result in any increase in the total mortality. Observation will show also that there were not many deaths of persons in military or naval service from causes incidental to military operations. Such deaths as occurred among the mobilized American forces were virtually limited to the acute infections in camps in the United States.

Tuberculosis was the chief cause of death, being responsible for 16.3 per cent. of all deaths in 1917. The death rate for all forms of tuberculosis was 188.9 per 100,000, and for tuberculosis of the lungs alone, including acute miliary tuberculosis, 172.3 per 100,000 This was the lowest rate recorded for this disease in the mortality experience since 1911. In 1916, the rate was 172.8 per 100,000. The difference between the rates for these two years, however, was the smallest of any between any two years in this experience, which indicates a slackening in the downward tendency of the mortality in recent years.

Organic diseases of the heart followed tuberculosis in order of numerical importance. The rate was 142.0 per 100,000, which is higher than the rate for the six year period 1911 to 1916, 140.1. It was only in 1912 that the death rate reached a higher point, 143.8.

TABLE 176.

Causes of Death According to detailed International List.

Number of Deaths in Entire Industrial Department. Death rates per 100,000 Persons Exposed.

Experience of Metropolitan Life Insurance Company. 1917.

Int. List No.	Cause of Death.	Number of Deaths.	Death Rate per 100,000 Exposed.	Int. List No.	Cause of Death.	Number of Deaths.	Death Rate per 100,000 Exposed.
1 to 189	ALL CAUSES OF DEATH—TOTAL	125,955	1161.1	22	Anthrax	10	.1
				23	Rabies	8	.1
1 to 59	General diseases	43,373	399.8	24	Tetanus	154	1.4
				25	Mycoses	7	.1
1	Typhoid fever	1,315	12.1	26	Pellagra	440	4.1
2	Typhus fever	—	—	27	Beriberi	—	—
3	Relapsing fever	—	—		Tuberculosis, all forms	20,497	188.9
4	Malaria	254	2.3	28	Tuberculosis of the lungs	17,641	162.6
5	Smallpox	26	.2	29	Acute miliary tuberculosis	1,055	9.7
6	Measles	1,200	11.1	30	Tuberculous meningitis	930	8.6
7	Scarlet fever	651	6.0	31	Abdominal tuberculosis	446	4.1
8	Whooping cough	552	5.1	32	Pott's disease	140	1.3
9	Diphtheria and croup	2,665	24.6	33	White swellings	84	.8
10	Influenza	1,557	14.4	34	Tuberculosis of other organs	182	1.7
11	Miliary fever	—	—	35	Disseminated tuberculosis	19	.2
12	Asiatic cholera	—	—	36	Rickets	31	.3
13	Cholera nostras	27	.2	37	Syphilis	1,370	12.6
14	Dysentery	348	3.2	38	Gonococcus infection	123	1.1
15	Plague	—	—		Cancer and other malignant tumors		
16	Yellow fever	—	—		(total)	7,694	70.9
17	Leprosy	1	†	39	Of the buccal cavity	294	2.7
18	Erysipelas	258	2.4	40	Of the stomach, liver	2,785	25.7
19	Other epidemic diseases	56	.5	41	Of the peritoneum, intestines, rectum	961	8.9
20	Purulent infection and septicemia	248	2.3	42	Of the female genital organs	1,570	14.5
21	Glanders	1	†	43	Of the breast	724	6.7

† Less than .05 per 100,000 exposed.

Int. List No.	Cause of Death.	Number of Deaths.	Death Rate per 100,000 Exposed.
44	Of the skin	211	1.9
45	Of other or unspecified organs	1,149	10.6
46	Other tumors (tumors of the female genital organs excepted)	41	.4
47	Acute articular rheumatism	605	5.6
48	Chronic rheumatism and gout	128	1.2
49	Scurvy	9	.1
50	Diabetes	1,663	15.3
51	Exophthalmic goitre	188	1.7
52	Addison's disease	31	.3
53	Leukemia	151	1.4
54	Anemia, chlorosis	354	3.3
55	Other general diseases	126	1.2
56	Alcoholism (acute or chronic)	534	4.9
57	Chronic lead poisoning	25	.2
58	Other chronic occupation poisonings	4	†
59	Other chronic poisonings	21	.2
60 to 76	DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE	10,857	100.1
60	Encephalitis	99	.9
61	Meningitis (total)	876	8.1
A61	Cerebrospinal fever	381	3.5
B61	Meningitis (simple and cerebrospinal undefined)	495	4.6
62	Locomotor ataxia	117	1.1
63	Other diseases of the spinal cord (total)	603	5.6
A63	Acute anterior poliomyelitis	170	1.6
B63	Other diseases of the spinal cord (acute anterior poliomy's excepted)	433	4.0
64	Cerebral hemorrhage, apoplexy	7,249	66.8
65	Softening of the brain	77	.7
66	Paralysis without specified cause	296	2.7
67	General paralysis of the insane	314	2.9
68	Other forms of mental alienation	158	1.5
69	Epilepsy	437	4.0
70	Convulsions (nonpuerperal)	35	.3
71	Convulsions of infants	65	.6
72	Chorea	14	.1
73	Neuralgia and neuritis	43	.4
74	Other diseases of the nervous system	245	2.3
75	Diseases of the eyes and their annexa	19	.2
76	Diseases of the ears	210	1.9
77 to 85	DISEASES OF THE CIRCULATORY SYSTEM	19,127	176.3
77	Pericarditis	90	.8
78	Acute endocarditis	982	9.1
79	Organic diseases of the heart	15,409	142.0
80	Angina pectoris	447	4.1
81	Diseases of the arteries*	1,825	16.8
82	Embolism and thrombosis	252	2.3
83	Diseases of the veins‡	59	.5
84	Diseases of the lymphatic system	34	.3
85	Hemorrhage; other diseases of the circulatory system	29	.3

* Includes atheroma, aneurism, etc.   ‡ Includes varices, hemorrhoids, phlebitis.   † Less than .05 per 100,000 exposed.

TABLE 176 (*Continued*).

CAUSES OF DEATH ACCORDING TO DETAILED INTERNATIONAL LIST.

Number of Deaths in Entire Industrial Department. Death rates per 100,000 Persons Exposed.

Experience of Metropolitan Life Insurance Company. 1917.

Int. List No.	Cause of Death.	Number of Deaths.	Death Rate per 100,000 Exposed.
86 to 98	DISEASES OF THE RESPIRATORY SYSTEM	15,391	141.9
86	Diseases of the nasal fossæ	11	.1
87	Diseases of the larynx	102	.9
88	Diseases of the thyroid body	39	.4
89	Acute bronchitis	495	4.6
90	Chronic bronchitis	677	6.2
91	Bronchopneumonia	3,495	32.2
92	Pneumonia (lobar and undefined)	9,637	88.8
93	Pleurisy	383	3.5
94	Pulmonary congestion	119	1.1
95	Gangrene of the lung	18	.2
96	Asthma	258	2.4
97	Pulmonary emphysema	25	.2
98	Other diseases of the respiratory system	132	1.2
99 to 118	DISEASES OF THE DIGESTIVE SYSTEM	9,147	84.3
99	Diseases of the mouth and annexa	70	.6
100	Diseases of the pharynx	379	3.5
101	Diseases of the esophagus	24	.2
102	Ulcer of the stomach	412	3.8
103	Other diseases of the stomach*	680	6.3
104	Diarrhea and enteritis (under 2 years)	1,296	11.9
105	Diarrhea and enteritis (2 years and over)	1,473	13.6
106	Ankylostomiasis	2	†
107	Intestinal parasites	14	.1
108	Appendicitis and typhlitis	1,257	11.6
A109	Hernia	478	4.4
B109	Intestinal obstruction	446	4.1
110	Other diseases of the intestines	296	2.7
111	Acute yellow atrophy of the liver	35	.3
112	Hydatid tumor of the liver	3	†
113	Cirrhosis of the liver	1,342	12.4
114	Biliary calculi	275	2.5
115	Other diseases of the liver	385	3.5
116	Diseases of the spleen	22	.2
117	Simple peritonitis (nonpuerperal)	210	1.9
118	Other diseases of the digestive system‡	48	.4
119 to 133	NONVENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA	12,580	116.0
119	Acute nephritis	899	8.3
120	Bright's disease	10,383	95.7
121	Chyluria	—	—
122	Other diseases of the kidneys and annexa	188	1.7
123	Calculi of the urinary passages	55	.5
124	Diseases of the bladder	85	.8

* Cancer excepted. † Less than .05 per 100,000 exposed. ‡ Cancer and tuberculosis excepted.

Int. List No.	Cause of Death.	Number of Deaths.	Death Rate per 100,000 Exposed.
125	Diseases of the urethra*	40	.4
126	Diseases of the prostate	206	1.9
127	Nonvenereal diseases of the male genital organs	5	†
128	Uterine hemorrhage (nonpuerperal)	7	.1
129	Uterine tumor (noncancerous)	247	2.3
130	Other diseases of the uterus	132	1.2
131	Cysts and other tumors of the ovary	101	.9
132	Salpingitis and other diseases of the female genital organs	226	2.1
133	Nonpuerperal diseases of the breast‡	6	.1
134 to 141	THE PUERPERAL STATE	1,979	18.2
134	Accidents of pregnancy	172	1.6
135	Puerperal hemorrhage	171	1.6
136	Other accidents of labor	182	1.7
137	Puerperal septicemia	817	7.5
138	Puerperal albuminuria and convulsions	554	5.1
139	Puerperal phlegmasia alba dolens, embolus, sudden death	75	.7
140	Following childbirth (not otherwise defined	8	.1
141	Puerperal diseases of the breast	——	——
142 to 145	DISEASES OF THE SKIN AND OF THE CELLULAR TISSUES	237	2.2
142	Gangrene	81	.7
143	Furuncle	43	.4
144	Acute abscess	68	.6
145	Other diseases of the skin and annexa	45	.4
146 to 149	DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION	285	2.6
146	Diseases of the bones‖	256	2.4
147	Diseases of the joints¶	24	.2
148	Amputations	1	†
149	Other diseases of the organs of locomotion	4	†
	MALFORMATIONS	65	.6
150	Congenital malformations	65	.6
	OLD AGE	459	4.2
154	Senility	459	4.2
155 to 186	AFFECTIONS PRODUCED BY EXTERNAL CAUSES§	11,572	106.7
	Suicide (total)	1,007	9.3
155	By poison	246	2.3
156	By asphyxia	210	1.9
157	By hanging or strangulation	121	1.1
158	By drowning	57	.5
159	By firearms	262	2.4

* Includes urinary abscess, etc.

† Less than .05 per 100,000 exposed.

‡ Cancer excepted.

‖ Tuberculosis excepted.

¶ Tuberculosis and rheumatism excepted.

§ War deaths included.

TABLE 176 (*Continued*).

Causes of Death According to detailed International List.

Number of Deaths in Entire Industrial Department. Death rates per 100,000 Persons Exposed.

Experience of Metropolitan Life Insurance Company. 1917.

Int. List No.	Cause of Death.	Number of Deaths.	Death Rate per 100,000 Exposed.	Int. List No.	Cause of Death.	Number of Deaths.	Death Rate per 100,000 Exposed.
160	By cutting or piercing instruments...	72	.7	C175	Automobile accidents and injuries .	1,049	9.7
161	By jumping from high places........	24	.2	D175	Injuries by other vehicles.........	270	2.5
162	By crushing....................	3	†	E175	Landslide, other crushing.........	61	.6
163	Other suicides....................	12	.1	176	Injuries by animals...............	42	.4
	Accident, all forms, and unspecified			177	Starvation........................	2	†
	violence*........................	8,299	76.5	178	Excessive cold....................	56	.5
164	Poisoning by food................	102	.9	179	Effects of heat....................	288	2.7
165	Other acute poisonings............	180	1.7	180	Lightning.........................	20	.2
166	Conflagration....................	126	1.2	181	Electricity (lightning excepted)......	78	.7
167	Burns...........................	962	8.9	185	Fractures (cause not specified)......	152	1.4
168	Absorption of deleterious gases......	363	3.3	186	Other external violence............	500	4.6
169	Accidental drowning..............	946	8.7	X186	War deaths........................	1,461	13.5
170	Traumatism by firearms...........	203	1.9		Homicide (total)..................	805	7.4
171	Traumatism by cutting or piercing			182	By firearms......................	522	4.8
	instruments....................	15	.1	183	By cutting or piercing instruments...	108	1.0
172	Traumatism by fall...............	1,288	11.9	184	By other means...................	175	1.6
A173	Traumatism in mines.............	125	1.2				
B173	Traumatism in quarries...........	8	.1	187 to 189	Ill defined diseases...........	883	8.1
174	Traumatism by machines..........	212	2.0				
	Traumatism by other crushing (total)	2,631	24.3	187	Ill defined organic disease...........	34	.3
A175	Railroad accidents and injuries....	923	8.5	188	Sudden death......................	43	.4
B175	Street-car accidents and injuries ...	328	3.0	189	Not specified or ill defined..........	806	7.4

† Less than .05 per 100,000 exposed.

* War deaths not included.

The cancer death rate, and especially that for cancer of the breast, was nominally stationary during 1917. The slight increase from a rate of 70.3 per 100,000 in 1916 to 70.9 per 100,000 in 1917 is of no practical significance. The average cancer death rate of the preceding six calendar years was 70.0 per 100,000. The 1917 rate of 70.9 per 100,000 was reached also in another year of the preceding six, namely, in 1915. Among wage earners, there is no evidence that cancer is, or ever has been, progressively on the increase. The death rates for diabetes, suicide by asphyxia, suicide by hanging and accidental poisoning also remained practically stationary as compared with the figures for 1916.

Significant Decreases in the Death Rates for Certain Causes of Death during 1917.

The most significant fact in the 1917 experience from the standpoint of preventive medicine is the further substantial decline in the typhoid fever death rate. In 1917, 12.1 deaths from typhoid fever occurred per 100,000 persons exposed. This rate was not quite one-half that recorded in 1911 (22.8 per 100,000). The progressive decline in the death rate for this disease is ample evidence of the growing effectiveness of the American public health movement for the control of a disease which was once a scourge. A fact of importance in the present mortality experience is the continued decline of the death rate from malaria. In 1917 the rate was 2.3 per 100,000 persons exposed, the lowest since 1911, when 6.1 deaths from malaria were recorded for each 100,000 persons exposed. These encouraging facts for typhoid fever and malaria mortality are evidence also of the effectiveness of visiting nursing in the management of these diseases among policyholders. A large number of cases of both diseases are provided each year with visiting nurse care by the Company. In the southern states, especially in some of the local areas where nursing service is available for policyholders, malaria and typhoid fever are of the first importance as causes of sickness. Among acute cases of malaria and among typhoid fever patients the practical bedside care given by the nurse and the accompanying instructions to the family in hygiene are really effective for life saving. Whooping cough mortality showed a decline from a rate of 5.8 per 100,000 in 1916 to a figure of 5.1 in 1917. This latter figure is not, however, the minimum recorded in these seven years of medical statistics of Industrial policyholders. In 1915 the whooping cough rate was 4.7 per 100,000.

The recorded mortality from influenza showed a decrease to a rate of 14.4 per 100,000. This may be compared with a figure of 23.8 for 1916, which was the highest rate for the seven-year period, 1911 to 1917. Acute poliomyelitis showed a tendency to return to its usually low rate. In 1917 there were recorded 1.6 deaths from this disease per 100,000 policyholders exposed. The rate which we may usually expect is approximately 1.2 per 100,000 persons exposed.

Suicide mortality also declined during 1917, although slightly. The suicide death rate in that year was 9.3 per 100,000 persons exposed as compared with a rate of 9.8 in the preceding year, with an average rate of 12.2 per 100,000 for the six-year period, 1911 to 1916. This phase of the suicide mortality experience of insured wage earners parallels that of the population in belligerent and neutral countries abroad. During war time, the suicide death rate of the civilian population usually shows a significant decrease. Deaths from accidental drowning showed a lower rate in 1917 (8.7 per 100,000) than in 1916 (9.7 per 100,000). Deaths from falling occurred at a rate of 11.9 per 100,000 in 1917 as compared with a figure of 13.1 per 100,000 in 1916.

Significant Increases in the Death Rates for Certain Causes of Death during 1917.

A small number of the more important causes of death showed significant increases during 1917. Both measles and scarlet fever had higher mortality rates than during 1916. Diphtheria also registered an increase of nearly four points per 100,000 over the rate for the year 1916. The 1917 diphtheria death rate was slightly in excess of the average for the preceding six years.

The increase in the death rate from pellagra is a matter of some importance. The year 1916, it is true, showed a decrease as compared with 1915 and 1914; but in 1917 there followed a rise of about 14 per cent. It was remarked in the section given over to the discussion of pellagra in the preceding pages that the death rate for this disease in the South seems to follow the level of economic prosperity in the wage earning groups of the population of that section of the country. The increase in the pellagra death rate for the year 1917 is, perhaps, an indication that the nutritional conditions which influence the development of the disease in the first place, and aggravate its course in the second place, have returned, approximately, to the average of the preceding six years. During this period the pellagra death rate was 4.3 per 100,000 persons exposed. The upward course of the pellagra death rate throughout 1917 may have been influenced by the single factor of high food prices brought about by war conditions.

Mortality from pneumonia (lobar and undefined) showed an increase during 1917. In fact, the death rate for this disease (88.8 per 100,000) was higher in 1917 than in any of the preceding six years of the present mortality experience except 1911. This rise in the pneumonia rate is perhaps best explained as the effect of severe weather conditions during the latter part of 1917. Mortality from the diseases and conditions of the puerperal state likewise showed an increase from a figure of 17.6 per 100,000 in 1916 to a rate of 18.2 in 1917. The rate for the later year is, however, considerably under the average for the preceding six years (18.9 per 100,000) and well under the maximum (20.0 per 100,000) observed for 1913. It will be recalled that the death rate for diseases and conditions of the puerperal state in 1916 was the lowest on record in the present study. The increase in the death rate for diseases and conditions associated with the maternal state may be accounted for largely by the increase in mortality from puerperal septicemia. This fact of increased maternal mortality does not, in itself, indicate any increase in the *fatality* rate of the gravid and parturient state. The number of births must be taken into account. A further inquiry into the 1917 maternal mortality experience, with this latter point in mind, is now being made.

There was also a higher death rate from all forms of accidents, combined, during 1917 (76.5 per 100,000) than during 1916 (73.2 per 100,000). The 1917 total accident rate is, however, well under the maximum for the period of seven years under observation. This maximum rate was registered in 1913, a figure of 77.6 per 100,000 persons exposed. The increase in the total accident rate seems to have been due principally to increases in that for automobile accidents and injuries, from 7.4 per 100,000 in 1916 to 9.7 per 100,000 in 1917. It will be recalled that the minimum rate for automobile accidents and injuries was 2.3 per 100,000 in 1911 and the average for the six years, 1911 to 1916, 4.7 per 1000,000. The automobile is gradually assuming the proportions of a serious menace to life, especially to the lives of children. Scarlet fever had a rate in 1917 two-thirds that ascribed to the automobile.

Steam railroad accidents and injuries also showed an increase during 1917 over the figure for the preceding year. A death rate of 8.5 per 100,000 persons exposed was recorded in 1917 as compared with a figure of 7.9 per 100,000 in 1916.

APPENDICES

APPENDIX A.

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
1 to 189	ALL CAUSES OF DEATH TOTAL	635449	58009	26645	16606	26655	35027
	White males	252742	27022	12269	6981	10119	12982
	White females	267337	24315	10946	6314	9743	13626
	Colored males	53795	3399	1668	1469	2914	3662
	Colored females	61575	3273	1762	1842	3879	4757
1 to 59	I. GENERAL DISEASES	225112	22751	13306	7191	13673	19124
	White males	86277	10401	5690	2226	4096	6567
	White females	93966	9917	5744	2932	5319	7492
	Colored males	20077	1205	894	739	1672	2115
	Colored females	24792	1228	978	1294	2586	2950
1	Typhoid fever	9011	572	936	1065	1495	1275
	White males	3380	231	289	375	560	529
	White females	3297	240	379	390	544	457
	Colored males	1088	45	128	112	186	142
	Colored females	1246	56	140	188	205	147
2	Typhus fever	1	...	...	...	...	...
	White males	1	...	...	...	...	...
	White females	...	...	...	...	...	...
	Colored males	...	...	...	...	...	...
	Colored females	...	...	...	...	...	...
3	Relapsing fever	8	1	1	2	2	...
	White males	1	...	...	...	...	...
	White females	2	1	...	1	...	...
	Colored males	2	...	1	...	1	...
	Colored females	3	...	...	1	1	...
4	Malaria	2295	293	235	123	117	155
	White males	451	79	73	32	23	26
	White females	495	77	57	31	19	32
	Colored males	542	67	51	17	31	42
	Colored females	807	70	54	43	44	55
5	Smallpox	103	20	9	4	10	8
	White males	36	7	7	...	5	3
	White females	36	11	2	1	1	3
	Colored males	15	1	...	1	...	1
	Colored females	16	1	...	2	4	1

APPENDIX A.

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
36105	37324	39907	40245	41139	46595	50108	55565	53419	43942	28158	1 to 189
13075	14121	15390	16236	16773	18567	20038	21746	20441	16752	10230	
13918	13507	14346	14674	15764	18929	21595	25353	26298	22580	15429	
4180	4558	4965	4637	4129	4355	3972	3843	2960	2081	1003	
4932	5138	5206	4698	4473	4744	4503	4623	3720	2529	1496	
18915	18027	17943	16478	14721	14784	14257	13049	10408	6907	3578	1 to 59
6771	7078	7314	6883	6039	5761	5439	4781	3678	2419	1134	
7127	6219	6254	6075	5899	6458	6664	6465	5529	3790	2082	
2171	2175	2177	1797	1323	1195	980	748	473	282	131	
2846	2555	2198	1723	1460	1370	1174	1055	728	416	231	
902	664	518	426	307	294	209	168	110	48	22	1
348	262	182	159	113	112	89	70	39	15	7	
336	205	180	164	117	94	66	56	38	20	11	
91	89	75	57	41	47	24	22	21	8	...	
127	108	81	46	36	41	30	20	12	5	4	
...	...	...	1	...	...	...	...	...	...	...	2
...	...	...	1	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	1	...	...	...	1	...	3
...	...	...	...	...	1	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	1	...	
145	139	122	114	138	160	148	159	137	78	32	4
21	21	19	20	23	27	16	25	24	15	7	
26	20	23	19	29	33	37	36	33	18	5	
34	42	29	27	39	36	37	32	32	17	9	
64	56	51	48	47	64	58	66	48	28	11	
5	4	10	6	4	8	6	6	1	2	...	5
1	...	5	2	...	4	2	...	...	...	...	
3	2	2	3	1	2	3	1	1	...	...	
...	1	2	1	2	2	...	3	...	1	...	
1	1	1	...	1	...	1	2	...	1	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
6	Measles	4776	3661	793	112	69	32
	White males	2242	1791	354	39	28	9
	White females	2200	1657	374	55	25	17
	Colored males	160	107	30	7	9	3
	Colored females	174	106	35	11	7	3
7	Scarlet fever	4638	2210	1635	420	171	86
	White males	2273	1140	818	176	80	27
	White females	2211	1010	770	220	80	57
	Colored males	75	25	27	16	3	...
	Colored females	79	35	20	8	8	2
8	Whooping cough	3075	2666	354	28	7	1
	White males	1007	895	100	8	1	1
	White females	1447	1261	161	8	3	...
	Colored males	281	236	39	5	1	...
	Colored females	340	274	54	7	2	...
9	Diphtheria and croup	13089	6868	4808	904	182	86
	White males	6373	3519	2297	379	80	33
	White females	6112	3089	2303	466	84	40
	Colored males	292	141	98	26	7	7
	Colored females	312	119	110	33	11	6
10	Influenza	8056	589	252	158	218	254
	White males	2411	268	98	53	74	73
	White females	3611	244	113	65	70	91
	Colored males	810	45	23	13	29	32
	Colored females	1224	32	18	27	45	58
11	Miliary fever	1	...	...	...	...	...
	White males	...	...	...	...	...	...
	White females	...	...	...	...	...	...
	Colored males	...	...	...	...	...	...
	Colored females	1	...	...	...	...	...
12	Asiatic cholera	5	...	2	...	...	...
	White males	2	...	1	...	...	...
	White females	3	...	1	...	...	...
	Colored males	...	...	...	...	...	...
	Colored females	...	...	...	...	...	...

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
28	24	16	11	9	10	4	3	2	1	1	6
4	7	2	1	2	3	...	1	...	...	1	
18	15	12	8	6	7	2	2	2	...	...	
2	...	1	...	...	...	1	...	...	...	...	
4	2	1	2	1	...	1	...	...	1	...	
41	29	22	8	5	3	4	3	...	...	1	7
8	8	7	4	2	...	2	1	...	...	...	
30	20	12	4	1	3	1	2	...	...	1	
1	1	1	...	1	...	...	...	...	...	...	
2	...	2	...	1	...	1	...	...	...	...	
2	3	2	2	2	2	2	2	...	2	...	8
...	...	...	...	1	...	...	1	...	...	...	
1	3	2	2	1	2	1	1	...	1	...	
...	...	...	...	...	...	...	...	...	...	...	
1	...	...	...	...	...	1	...	...	1	...	
60	50	36	23	26	13	10	9	6	5	3	9
15	10	11	9	7	2	2	3	3	2	1	
34	28	18	10	13	9	7	4	3	2	2	
2	2	2	3	4	...	...	...	...	...	...	
9	10	5	1	2	2	1	2	...	1	...	
283	288	358	344	417	603	747	902	1042	945	656	10
67	80	109	105	124	159	226	243	290	276	166	
98	96	112	126	169	254	317	423	531	509	393	
48	52	68	51	49	75	82	76	78	60	29	
70	60	69	62	75	115	122	160	143	100	68	
1	...	...	...	...	...	...	...	...	...	...	11
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
1	...	...	...	...	...	...	...	...	...	...	
...	1	...	...	1	...	1	...	...	...	...	12
...	...	...	...	...	...	1	...	...	...	...	
...	1	...	...	1	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
13	Cholera nostras	190	32	12	5	...	4
	White males	83	20	4	4	...	2
	White females	74	9	5	1	...	...
	Colored males	13	...	2	...	...	1
	Colored females	20	3	1	...	...	1
14	Dysentery	2029	526	84	18	27	33
	White males	648	238	41	6	10	4
	White females	848	226	31	5	8	11
	Colored males	212	32	6	2	2	5
	Colored females	321	30	6	5	7	13
15	Plague	1	...	...	...	...	...
	White males	...	...	...	...	...	...
	White females	1	...	...	...	...	...
	Colored males	...	...	...	...	...	...
	Colored females	...	...	...	...	...	...
16	Yellow fever	1	...	...	...	...	...
	White males	1	...	...	...	...	...
	White females	...	...	...	...	...	...
	Colored males	...	...	...	...	...	...
	Colored females	...	...	...	...	...	...
17	Leprosy	11	...	...	...	...	2
	White males	5	...	...	...	...	1
	White females	2	...	...	...	...	1
	Colored males	2	...	...	...	...	...
	Colored females	2	...	...	...	...	...
18	Erysipelas	1289	62	27	21	41	44
	White males	596	24	16	9	18	19
	White females	573	35	11	11	18	19
	Colored males	62	2	...	1	2	4
	Colored females	58	1	...	...	3	2
19	Other epidemic diseases	184	98	42	13	4	3
	White males	86	49	21	2	2	2
	White females	81	43	17	8	2	1
	Colored males	7	4	1	...	...	...
	Colored females	10	2	3	3	...	...

Condition. Classified by Color, Sex and by Age Period.
Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
2	5	4	8	7	17	15	23	29	15	12	13
1	2	1	3	3	4	7	11	13	6	2	
...	1	2	3	3	11	4	8	11	7	9	
...	...	...	2	...	1	3	1	2	1	...	
1	2	1	...	1	1	1	3	3	1	1	
51	52	56	61	73	122	138	206	241	200	141	14
13	17	14	11	19	31	39	47	62	59	37	
13	14	11	13	33	45	52	88	115	109	74	
9	7	13	18	7	20	23	27	21	12	8	
16	14	18	19	14	26	24	44	43	20	22	
...	...	...	...	...	...	...	...	...	1	...	15
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	1	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	1	...	...	...	...	...	...	...	...	...	16
...	1	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
1	1	1	4	...	...	...	1	1	...	...	17
1	...	1	2	...	...	...	...	...	...	...	
...	...	...	1	...	...	...	...	...	...	...	
...	...	...	1	...	...	...	...	1	...	...	
...	1	...	...	...	...	...	1	...	...	...	
48	73	85	98	116	122	138	143	112	101	58	18
23	40	46	52	54	60	71	57	42	46	19	
19	23	32	38	49	52	58	68	59	44	37	
3	5	3	7	5	8	5	7	2	7	1	
3	5	4	1	8	2	4	11	9	4	1	
...	1	2	1	3	2	4	2	4	3	2	19
...	1	2	1	1	2	1	1	1	...	...	
...	...	...	...	...	...	3	...	3	2	2	
...	...	...	...	1	...	...	...	...	1	...	
...	...	...	...	1	...	...	1	...	...	...	

Number of Deaths from Each Specified Disease or
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
20	Purulent infection and septicemia	1083	84	74	57	61	70
	White males	482	30	40	27	31	37
	White females	427	48	30	25	20	29
	Colored males	86	2	3	4	4	1
	Colored females	88	4	1	1	6	3
21	Glanders	6	...	...	...	...	...
	White males	3	...	...	...	...	...
	White females	1	...	...	...	...	...
	Colored males	2	...	...	...	...	...
	Colored females	...	...	...	...	...	...
22	Anthrax	27	1	...	...	2	1
	White males	21	1	...	...	2	1
	White females	6	...	...	...	...	...
	Colored males	...	...	...	...	...	...
	Colored females	...	...	...	...	...	...
23	Rabies	84	14	16	19	9	2
	White males	54	9	11	14	7	2
	White females	17	5	4	2	2	...
	Colored males	7	...	1	3	...	...
	Colored females	6	...	...	...	...	...
24	Tetanus	890	40	210	154	71	47
	White males	479	23	128	99	42	21
	White females	188	14	52	16	8	9
	Colored males	166	2	24	31	18	7
	Colored females	57	1	6	8	3	10
25	Mycoses	14	1	1	1	3	...
	White males	10	1	1	1	2	...
	White females	2	...	...	...	1	...
	Colored males	1	...	...	...	...	...
	Colored females	1	...	...	...	...	...
26	Pellagra	2310	20	24	32	57	155
	White males	352	4	1	4	7	7
	White females	1010	11	8	12	25	66
	Colored males	194	3	6	7	4	7
	Colored females	754	2	9	9	21	75

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.
Mortality Experience, 1911 to 1916.

Age Periods.											
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	Int'l List Number.
75	67	70	72	68	83	78	87	65	46	26	20
28	29	31	26	26	39	38	43	25	21	11	
33	24	27	29	21	25	28	32	25	18	13	
5	6	9	10	14	9	4	4	9	2	...	
9	8	3	7	7	10	8	8	6	5	2	
2	...	1	2	...	...	...	1	...	...	...	21
1	...	1	...	...	...	...	1	...	...	...	
1	...	...	...	...	...	...	...	...	...	...	
...	...	...	2	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
1	2	2	1	2	5	1	2	3	2	2	22
...	1	2	1	2	3	1	1	3	2	1	
1	1	...	...	...	2	...	1	...	...	1	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
3	...	5	4	2	4	2	2	1	1	...	23
2	...	3	2	2	1	...	1	...	...	...	
...	...	1	1	...	...	1	...	...	1	...	
...	...	...	...	...	1	1	...	1	...	...	
1	...	1	1	...	2	...	1	...	...	...	
63	48	54	45	29	34	39	19	21	12	4	24
29	16	27	22	12	16	19	9	7	5	4	
13	11	13	12	6	7	6	7	8	6	...	
16	14	11	10	4	9	12	2	5	1	...	
5	7	3	1	7	2	2	1	1	...	...	
1	...	...	2	...	1	2	2	...	...	...	25
1	...	...	1	...	1	2	...	...	...	...	
...	...	...	...	...	...	...	1	...	...	...	
...	...	...	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	...	...	...	...	...	
207	256	278	280	203	219	221	177	114	46	21	26
15	25	25	33	24	38	57	57	34	14	7	
93	102	130	135	94	101	89	74	46	18	6	
12	16	19	25	21	26	19	13	8	5	3	
87	113	104	87	64	54	56	33	26	9	5	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR

Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to4.	5 to 9.	10 to 14.	15 to 19	20 to 24.
27	Beriberi	4	...	...	...	...	...
	White males	2	...	...	...	...	...
	White females	1	...	...	...	...	...
	Colored males	...	...	...	...	...	...
	Colored females	1	...	...	...	...	...
28 to 35	Tuberculosis—all forms (total)	110363	4095	2742	3053	10023	15678
	White males	45319	1669	886	574	2653	5302
	White females	37881	1583	963	1125	3933	6161
	Colored males	13123	420	416	461	1316	1778
	Colored females	14040	423	477	893	2121	2437
28	Tuberculosis of the lungs	93526	926	977	1968	8270	13714
	White males	39353	277	202	258	2169	4744
	White females	31763	288	301	747	3323	5402
	Colored males	10902	171	220	307	1042	1502
	Colored females	11508	190	254	656	1736	2066
29	Acute miliary tuberculosis	6380	263	202	257	867	1173
	White males	2087	84	57	37	193	321
	White females	2056	89	65	86	315	453
	Colored males	1038	40	24	42	140	164
	Colored females	1199	50	56	92	219	235
30	Tuberculous meningitis	4647	2324	1008	358	262	183
	White males	1953	1038	422	135	96	59
	White females	1983	1017	426	144	119	87
	Colored males	357	137	81	32	31	22
	Colored females	354	132	79	47	16	15
31	Abdominal tuberculosis	3155	305	251	213	324	348
	White males	791	131	73	34	58	70
	White females	1179	107	69	66	92	136
	Colored males	470	44	52	45	62	52
	Colored females	715	23	57	68	112	90
32	Pott's disease	866	107	140	110	103	75
	White males	381	50	61	51	48	33
	White females	300	42	51	34	29	19
	Colored males	104	8	17	11	14	16
	Colored females	81	7	11	14	12	7

Condition. Classified by Color, Sex and by Age Period.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
2	...	...	2	...	...	...	...	...	...	...	27
1	...	...	1	...	...	...	...	...	...	...	
...	...	...	1	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
1	...	...	...	...	...	...	...	...	...	...	
15309	13844	12466	10043	7303	5554	4260	2992	1742	889	370	28 to 35
5592	5763	5660	5086	3917	3011	2311	1504	870	382	139	
5739	4583	3873	2892	2034	1535	1243	1011	640	385	181	
1787	1707	1616	1235	813	615	444	287	133	72	23	
2191	1791	1317	830	539	393	262	190	99	50	27	
13719	12511	11286	9140	6704	5093	3868	2690	1554	787	319	28
5086	5324	5260	4750	3692	2815	2133	1380	795	344	124	
5192	4142	3479	2613	1816	1386	1119	901	564	340	150	
1547	1497	1414	1072	735	548	398	250	118	59	22	
1894	1548	1133	705	461	344	218	159	77	44	23	
960	755	657	487	290	202	121	82	37	21	6	29
300	276	255	217	126	102	57	31	18	10	3	
316	221	188	116	82	43	33	29	11	7	2	
156	124	126	102	44	36	20	12	5	3	...	
188	134	88	52	38	21	11	10	3	1	1	
133	85	91	64	43	28	28	20	12	5	3	30
55	33	31	28	18	11	13	9	2	2	1	
51	30	35	19	14	12	8	8	8	3	2	
13	11	13	8	3	2	2	1	1	...	...	
14	11	12	9	8	3	5	2	1	...	...	
288	278	268	223	154	135	128	105	76	37	22	31
62	53	56	48	37	44	44	36	28	11	6	
107	101	116	88	75	57	52	43	35	21	14	
38	44	33	36	18	15	13	14	3	1	...	
81	80	63	51	24	19	19	12	10	4	2	
65	77	46	33	29	20	18	15	13	10	5	32
25	33	19	13	11	8	12	8	4	4	1	
26	30	15	14	11	11	3	5	2	4	4	
10	8	6	3	3	1	2	...	3	2	...	
4	6	6	3	4	...	1	2	4	...	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
33	White swellings	573	54	73	69	65	45
	White males	278	31	40	30	34	23
	White females	185	14	26	23	20	14
	Colored males	77	4	5	11	8	7
	Colored females	33	5	2	5	3	1
34	Tuberculosis of other organs	959	96	74	63	97	104
	White males	395	49	30	26	48	40
	White females	329	25	21	18	27	35
	Colored males	125	11	9	11	9	11
	Colored females	110	11	14	8	13	18
35	Disseminated tuberculosis	257	20	17	15	35	36
	White males	81	9	1	3	7	12
	White females	86	1	4	7	8	15
	Colored males	50	5	8	2	10	4
	Colored females	40	5	4	3	10	5
36	Rickets	174	132	20	4	2	1
	White males	43	28	9	2	...	...
	White females	57	38	5	1	2	1
	Colored males	36	34	2	...	...	...
	Colored females	38	32	4	1	...	...
37	Syphilis	4659	116	45	41	80	181
	White males	1984	43	18	17	19	56
	White females	1004	30	12	9	24	42
	Colored males	988	20	7	10	13	36
	Colored females	683	23	8	5	24	47
38	Gonococcus infection	200	5	2	1	25	28
	White males	46	...	1	...	4	3
	White females	71	4	...	1	10	13
	Colored males	31	...	1	...	2	2
	Colored females	52	1	...	...	9	10
39 to 45	Cancer and other malignant tumors—all forms (total)	37666	169	109	91	169	224
	White males	10784	78	51	46	75	99
	White females	22736	83	52	42	77	97
	Colored males	946	4	3	1	7	4
	Colored females	3200	4	3	2	10	24

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
37	38	27	25	29	34	31	13	17	11	5	33
20	15	9	9	12	15	18	9	8	4	1	
5	15	11	10	11	12	7	2	8	4	3	
9	5	7	3	3	7	2	2	...	3	1	
3	3	...	3	3	...	4	...	1	...	...	
77	76	68	57	43	35	58	55	29	17	10	34
28	24	22	18	16	13	32	27	13	6	3	
33	31	22	26	20	13	17	19	10	6	6	
10	12	12	9	7	4	7	6	3	4	...	
6	9	12	4	...	5	2	3	3	1	1	
30	24	23	14	11	7	8	12	4	1	...	35
16	5	8	3	5	3	2	4	2	1	...	
9	13	7	6	5	1	4	4	2	...	...	
4	6	5	2	...	2	...	2	...	...	...	
1	...	3	3	1	1	2	2	...	...	...	
1	2	3	...	...	3	2	2	...	...	2	36
1	1	1	...	...	1	...	...	...	...	...	
...	...	2	...	...	2	2	2	...	...	2	
...	...	...	...	...	...	...	...	...	...	...	
...	1	...	...	...	...	...	...	...	...	...	
362	505	706	665	583	526	367	249	133	73	27	37
115	191	325	268	276	245	171	126	67	31	16	
71	100	137	145	121	123	76	58	33	18	5	
85	131	150	154	114	104	82	42	21	15	4	
91	83	94	98	72	54	38	23	12	9	2	
26	26	31	17	11	15	4	3	5	...	1	38
4	3	6	5	2	10	3	2	3	...	...	
14	9	10	5	3	1	...	...	1	...	...	
3	6	5	4	2	3	1	1	1	...	...	
5	8	10	3	4	1	...	...	...	...	1	
422	910	1891	2866	3925	5205	5783	5913	4901	3384	1704	39 to 45
103	156	284	478	851	1346	1711	2007	1697	1222	580	
219	537	1205	1915	2514	3247	3488	3369	2882	1977	1032	
19	27	64	86	105	155	146	159	88	50	28	
81	190	338	387	455	457	438	378	234	135	64	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
39	Of the buccal cavity	1353	6	4	5	4	12
	White males	989	3	2	3	2	4
	White females	240	2	1	2	1	6
	Colored males	75	...	1	...	1	1
	Colored females	49	1	...	...	...	1
40	Of the stomach, liver	14153	20	11	7	16	35
	White males	5309	7	7	2	6	17
	White females	7674	13	3	5	7	10
	Colored males	494	...	...	...	2	1
	Colored females	676	...	1	...	1	7
41	Of the peritoneum, intestines, rectum	4482	22	12	13	18	42
	White males	1414	14	9	9	8	18
	White females	2701	6	3	3	8	21
	Colored males	103	...	...	1	1	1
	Colored females	264	2	...	...	1	2
42	Of the female genital organs	7882	4	5	3	16	30
	White males	...	...	...	...	...	...
	White females	6499	4	5	3	14	25
	Colored males	...	...	...	...	...	...
	Colored females	1383	...	...	...	2	5
43	Of the breast	3579	...	...	1	1	4
	White males	31	...	...	...	...	...
	White females	3004	...	...	1	1	3
	Colored males	9	...	...	...	...	...
	Colored females	535	...	...	...	...	1
44	Of the skin	938	3	5	5	2	4
	White males	478	3	2	1	1	3
	White females	409	...	3	4	1	1
	Colored males	25	...	...	...	...	...
	Colored females	26	...	...	...	...	...
45	Of other organs or of organs not specified	5279	114	72	57	112	97
	White males	2563	51	31	31	58	57
	White females	2209	58	37	24	45	31
	Colored males	240	4	2	...	3	1
	Colored females	267	1	2	2	6	8

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.
Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
4	11	30	72	117	168	218	222	229	152	99	39
2	5	20	44	86	120	157	173	180	114	74	
1	4	5	18	15	25	40	29	39	30	22	
...	1	2	6	15	12	14	11	6	3	2	
1	1	3	4	1	11	7	9	4	5	1	
71	186	417	745	1184	1907	2436	2716	2183	1522	697	40
30	56	123	236	436	715	933	1085	837	580	239	
26	84	217	416	613	1021	1301	1427	1241	868	422	
7	13	29	40	53	82	84	96	45	30	12	
8	33	48	53	82	89	118	108	60	44	24	
73	110	213	276	393	624	643	700	653	462	228	41
22	26	52	68	119	176	210	245	217	160	61	
35	57	116	161	238	385	394	424	410	284	156	
5	6	10	10	7	16	12	10	10	7	7	
11	21	35	37	29	47	27	21	16	11	4	
143	325	727	1022	1212	1277	1169	903	598	320	128	42
...	...	...	...	...	...	...	...	...	...	...	
95	229	547	816	992	1078	988	785	523	283	112	
...	...	...	...	...	...	...	...	...	...	...	
48	96	180	206	220	199	181	118	75	37	16	
25	108	256	412	506	553	500	416	396	256	145	43
...	...	1	...	3	2	2	7	9	5	2	
18	86	202	346	421	470	429	342	332	223	130	
2	...	1	2	1	2	...	...	1	...	...	
5	22	52	64	81	79	69	67	54	28	13	
7	9	21	27	41	67	99	154	172	180	142	44
1	5	11	15	22	39	52	83	94	80	66	
5	3	6	8	14	20	39	59	74	97	75	
1	...	1	4	3	3	4	5	1	2	1	
...	1	3	...	2	5	4	7	3	1	...	
99	161	227	312	472	609	718	802	670	492	265	45
48	64	77	115	185	294	357	414	360	283	138	
39	74	112	150	221	248	297	303	263	192	115	
4	7	21	24	26	40	32	37	25	8	6	
8	16	17	23	40	27	32	48	22	9	6	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
46	Other tumors (tumors of the female genital organs excepted)	293	7	3	2	1	5
	White males	51	4	1	1	1	1
	White females	161	3	2	...	...	2
	Colored males	9	...	...	...	...	...
	Colored females	72	...	...	1	...	2
47	Acute articular rheumatism	3409	126	570	497	322	209
	White males	1303	70	266	202	150	74
	White females	1511	48	269	256	133	98
	Colored males	245	6	17	16	15	17
	Colored females	350	2	18	23	24	20
48	Chronic rheumatism and gout	598	1	3	4	9	10
	White males	159	...	2	4	3	5
	White females	336	1	1	...	5	2
	Colored males	41	...	...	...	1	2
	Colored females	62	...	...	...	...	1
49	Scurvy	21	11	1	1	1	1
	White males	11	7	...	...	1	...
	White females	8	4	1	...	...	...
	Colored males	1	...	...	1	...	...
	Colored females	1	...	...	...	...	1
50	Diabetes	7762	83	122	224	242	218
	White males	2305	41	53	94	120	109
	White females	4754	39	60	121	109	96
	Colored males	289	...	7	1	8	10
	Colored females	414	3	2	8	5	3
51	Exophthalmic goiter	743	...	1	6	46	66
	White males	40	...	1	1	7	8
	White females	592	...	...	5	35	51
	Colored males	8	...	...	...	...	...
	Colored females	103	...	...	...	4	7
52	Addison's disease	164	...	1	2	8	14
	White males	56	...	...	1	4	9
	White females	103	...	1	1	3	5
	Colored males	2	...	...	...	...	...
	Colored females	3	...	...	...	1	...

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
14	16	27	44	28	18	27	32	32	30	7	46
3	2	1	2	4	2	4	8	7	9	1	
9	6	13	15	17	13	17	17	23	18	6	
1	1	...	3	3	...	1	...	...	...	...	
1	7	13	24	4	3	5	7	2	3	...	
166	166	147	183	170	176	192	160	168	100	57	47
53	51	48	58	57	72	60	46	48	30	18	
75	70	54	66	64	59	85	81	82	49	22	
13	15	24	24	18	24	17	12	13	5	9	
25	30	21	35	31	21	30	21	25	16	8	
16	21	15	17	44	41	64	81	108	101	63	48
7	8	4	6	10	8	18	19	26	28	11	
5	9	5	9	23	28	31	43	64	64	46	
1	2	2	1	4	2	6	9	4	3	4	
3	2	4	1	7	3	9	10	14	6	2	
...	1	...	2	...	1	1	...	...	1	...	49
...	1	...	1	...	...	...	...	...	1	...	
...	...	...	1	...	1	1	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
215	239	250	333	541	859	1191	1257	1066	641	281	50
95	95	90	120	150	229	291	300	261	185	72	
94	106	120	158	304	525	787	867	753	426	189	
11	18	22	26	34	30	49	32	18	15	8	
15	20	18	29	53	75	64	58	34	15	12	
68	90	86	100	80	62	49	51	27	8	3	51
4	3	2	3	5	2	...	3	1	...	...	
54	70	74	80	62	48	38	41	25	6	3	
...	2	...	1	2	...	3	...	...	...	...	
10	15	10	16	11	12	8	7	1	2	...	
14	14	16	14	22	16	12	11	16	3	1	52
4	4	6	5	4	1	5	5	6	2	...	
10	10	9	9	16	14	7	6	10	1	1	
...	...	1	...	1	...	...	...	...	...	...	
...	...	...	...	1	1	...	...	...	...	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
53	Leukemia	762	70	88	52	58	67
	White males	378	44	57	30	34	36
	White females	309	22	27	19	14	23
	Colored males	39	1	1	3	5	4
	Colored females	36	3	3	...	5	4
54	Anemia, chlorosis	1772	63	44	53	90	65
	White males	507	29	27	13	30	9
	White females	1103	29	14	25	48	44
	Colored males	49	5	...	1	2	3
	Colored females	113	...	3	14	10	9
55	Other general diseases	426	112	38	22	35	24
	White males	160	58	17	11	14	8
	White females	213	51	19	10	15	12
	Colored males	18	2	...	...	3	2
	Colored females	35	1	2	1	3	2
56	Alcoholism (acute or chronic)	2555	3	1	2	8	54
	White males	1889	1	...	2	2	37
	White females	405	1	...	...	1	8
	Colored males	207	1	...	...	2	5
	Colored females	54	...	1	...	3	4
57	Chronic lead poisoning	191	...	1	...	2	3
	White males	168	...	1	...	2	3
	White females	5	...	...	...	...	...
	Colored males	18	...	...	...	...	...
	Colored females	...	...	...	...	...	...
58	Other chronic occupation poisonings	9	...	...	...	...	1
	White males	6	...	...	...	...	...
	White females	1	...	...	...	...	1
	Colored males	2	...	...	...	...	...
	Colored females	...	...	...	...	...	...
59	Other chronic poisonings	164	...	...	...	6	17
	White males	69	...	...	...	5	11
	White females	71	...	...	...	...	3
	Colored males	8	...	...	...	1	...
	Colored females	16	...	...	...	...	3

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
49	34	53	52	41	57	51	40	32	14	4	53
25	14	15	23	12	20	26	23	11	8	...	
18	14	34	21	24	32	22	14	18	5	2	
3	3	2	6	2	2	2	1	1	1	2	
3	3	2	2	3	3	1	2	2	...	...	
70	78	105	123	151	193	232	193	162	97	53	54
14	16	31	16	49	50	66	61	49	28	19	
46	54	58	94	91	124	157	126	98	63	32	
2	2	4	5	1	7	5	4	4	3	1	
8	6	12	8	10	12	4	2	11	3	1	
22	17	16	22	22	22	19	12	19	16	8	55
5	5	5	6	6	2	5	4	7	5	2	
13	9	7	11	14	12	12	4	8	11	5	
2	1	2	1	1	1	...	1	1	...	1	
2	2	2	4	1	7	2	3	3	...	...	
208	315	454	435	345	295	198	114	82	31	10	56
150	227	323	317	255	229	167	84	65	21	9	
36	61	70	77	59	40	17	18	10	7	...	
16	21	50	33	27	18	12	11	7	3	1	
6	6	11	8	4	8	2	1	...	...	...	
10	18	21	31	26	23	22	15	13	4	2	57
7	12	19	27	20	23	22	14	12	4	2	
1	2	1	1	...	...	...	...	...	...	...	
2	4	1	3	6	...	...	1	1	...	...	
...	...	...	...	...	...	...	...	...	...	...	
1	...	...	1	3	...	...	1	2	...	...	58
1	...	...	1	2	...	...	1	1	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	1	...	...	...	1	...	...	
...	...	...	...	...	...	...	...	...	...	...	
19	23	14	15	14	15	14	6	11	6	4	59
9	6	6	5	4	7	6	2	4	2	2	
4	13	5	7	9	7	6	4	7	4	2	
3	...	1	1	1	...	1	...	...	...	...	
3	4	2	2	...	1	1	...	...	...	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR

Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
60 to 76	II. DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE	57606	3961	1865	989	1034	919
	White males	21801	1950	899	435	480	392
	White females	26150	1645	766	409	373	326
	Colored males	4184	195	114	79	104	100
	Colored females	5471	171	86	66	77	101
60	Encephalitis	519	83	61	38	40	37
	White males	214	37	27	11	17	20
	White females	200	36	21	18	20	10
	Colored males	53	4	7	6	2	2
	Colored females	52	6	6	3	1	5
61	Meningitis (total)	4171	1705	799	404	327	182
	White males	1907	834	370	164	165	71
	White females	1663	716	327	172	101	59
	Colored males	336	82	58	35	40	30
	Colored females	265	73	44	33	21	22
*A61	Cerebrospinal fever	823	279	160	101	90	50
	White males	378	146	70	42	55	18
	White females	275	112	58	33	17	17
	Colored males	97	12	19	13	13	9
	Colored females	73	9	13	13	5	6
62	Locomotor ataxia	797	...	2	5	1	3
	White males	513	...	2	4	...	1
	White females	191	...	...	1	...	1
	Colored males	59	...	...	...	1	1
	Colored females	34	...	...	...	...	...
63	Other diseases of the spinal cord (total)	4049	1149	555	133	106	83
	White males	1846	602	286	71	58	35
	White females	1716	473	228	53	34	36
	Colored males	239	42	19	4	5	8
	Colored females	248	32	22	5	9	4
A63	Acute anterior poliomyelitis	1889	1095	510	102	55	27
	White males	990	574	265	53	34	11
	White females	768	453	209	45	17	13
	Colored males	69	40	16	1	2	3
	Colored females	62	28	20	3	2	...

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* Includes only deaths reported as due to cerebrospinal fever during the

Condition. Classified by Color, Sex and by Age Period.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
1013	1400	1831	2569	3522	5090	6173	7716	8052	6895	4577	60 to 76
392	554	653	898	1149	1701	2215	2821	2955	2614	1693	
395	490	676	996	1515	2168	2757	3612	3991	3537	2494	
118	181	236	302	361	513	488	515	437	286	155	
108	175	266	373	497	708	713	768	669	458	235	
40	26	22	31	27	31	29	19	17	9	9	60
19	12	5	17	6	15	8	5	6	4	5	
13	2	9	9	14	12	13	10	6	4	3	
4	7	1	1	4	2	6	3	3	1	...	
4	5	7	4	3	2	2	1	2	...	1	
135	126	90	100	85	75	44	52	25	14	8	61
59	40	34	41	36	31	21	23	7	8	3	
50	52	28	41	30	28	16	20	16	4	3	
18	17	15	14	9	8	3	4	1	1	1	
8	17	13	4	10	8	4	5	1	1	1	
33	26	19	19	17	15	3	6	4	1	...	61
12	7	7	5	6	5	1	3	...	1	...	
12	5	4	7	4	1	...	1	4	...	...	
5	9	2	5	3	6	1	...	...	...	...	
4	5	6	2	4	3	1	2	...	...	...	
9	23	47	86	90	126	149	116	68	46	26	62
4	13	25	55	58	84	94	79	42	32	20	
3	7	15	20	18	27	38	25	19	13	4	
1	1	3	8	8	10	10	7	6	1	2	
1	2	4	3	6	5	7	5	1	...	...	
64	90	87	122	143	248	234	320	339	244	132	63
25	36	37	37	53	83	85	129	148	107	54	
28	36	38	52	61	106	110	148	146	105	62	
5	11	8	18	11	26	21	14	26	15	6	
6	7	4	15	18	33	18	29	19	17	10	
9	16	4	7	7	7	12	11	17	5	5	A63
5	8	3	5	1	6	7	3	11	3	1	
3	4	1	...	2	1	4	5	6	1	4	
1	1	...	...	4	...	1	...	...	...	...	
...	3	...	2	...	...	...	3	...	1	...	

period 1912 to 1916; such deaths were not tabulated separately in 1911.

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
64	Cerebral hemorrhage, apoplexy	36638	138	54	51	96	160
	White males	12886	54	23	25	31	55
	White females	17855	60	20	14	39	59
	Colored males	2347	12	9	5	9	18
	Colored females	3550	12	2	7	17	28
65	Softening of the brain	488	1	3	4	8	5
	White males	193	1	2	3	4	1
	White females	215	...	...	1	2	3
	Colored males	38	...	1	...	1	...
	Colored females	42	...	...	...	1	1
66	Paralysis without specified cause	2773	19	17	19	18	12
	White males	758	11	9	5	7	1
	White females	1066	7	5	8	6	2
	Colored males	358	1	3	4	2	6
	Colored females	591	...	...	2	3	3
67	General paralysis of the insane	2224	...	1	2	7	4
	White males	1056	...	1	...	4	2
	White females	691	...	...	2	2	1
	Colored males	274	...	...	...	1	1
	Colored females	203	...	...	...	...	...
68	Other forms of mental alienation	757	2	...	...	28	51
	White males	195	...	...	...	6	16
	White females	389	2	...	...	14	21
	Colored males	82	...	...	...	4	7
	Colored females	91	...	...	...	4	7
69	Epilepsy	1869	59	76	116	215	220
	White males	864	26	38	59	99	108
	White females	689	26	33	40	75	72
	Colored males	181	4	2	12	28	20
	Colored females	135	3	3	5	13	20
70	Convulsions (nonpuerperal)	98	...	30	11	9	8
	White males	28	...	14	7	...	1
	White females	49	...	13	1	7	7
	Colored males	6	...	1	1	1	...
	Colored females	15	...	2	2	1	...

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	Int'l List Number.
248	506	861	1378	2308	3698	4805	6172	6575	5753	3835	64
80	176	263	410	668	1173	1688	2252	2410	2160	1418	
80	185	334	555	1067	1676	2245	2988	3363	3049	2121	
47	69	109	165	230	340	332	373	306	206	117	
41	76	155	248	343	509	540	559	496	338	179	
6	6	10	17	23	30	35	71	101	100	68	65
...	4	5	8	8	7	12	24	34	48	32	
5	1	2	7	12	14	17	33	45	41	32	
...	1	2	2	...	5	2	9	9	4	2	
1	...	1	...	3	4	4	5	13	7	2	
25	54	56	104	172	260	325	441	525	426	300	66
5	19	16	26	27	43	90	112	160	137	90	
7	16	11	26	68	72	101	172	221	186	158	
5	11	15	23	18	58	50	54	50	39	19	
8	8	14	29	59	87	84	103	94	64	33	
37	133	249	300	311	277	234	218	185	163	103	67
14	69	133	152	164	144	103	95	69	63	43	
12	33	52	78	78	73	76	79	79	73	53	
1	20	47	37	49	31	34	20	19	10	4	
10	11	17	33	20	29	21	24	18	17	3	
62	75	68	86	74	78	63	74	48	31	17	68
17	21	18	15	21	19	11	21	19	8	3	
32	31	32	54	34	43	37	36	22	19	12	
6	8	9	7	8	10	8	9	3	3	...	
7	15	9	10	11	6	7	8	4	1	2	
229	188	162	159	104	71	90	69	51	35	25	69
104	96	55	75	48	34	35	24	31	20	12	
92	58	75	57	39	24	36	29	14	8	11	
20	27	14	12	9	9	8	11	2	2	1	
13	7	18	15	8	4	11	5	4	5	1	
10	10	3	3	5	1	2	2	1	...	3	70
...	1	1	...	2	...	1	...	...	...	1	
7	4	1	3	3	1	...	1	...	...	1	
1	1	...	...	...	...	...	...	1	...	...	
2	4	1	...	...	...	1	1	...	...	1	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR

Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
71	Convulsions of infants	461	458	3	...	...	...
	White males	204	204	...	...	...	...
	White females	186	184	2	...	...	...
	Colored males	34	34	...	...	...	...
	Colored females	37	36	1	...	...	...
72	Chorea	98	6	11	21	18	9
	White males	26	4	4	5	2	2
	White females	65	1	7	16	14	7
	Colored males	3	1	...	...	1	...
	Colored females	4	...	...	...	1	...
73	Neuralgia and neuritis	310	2	1	3	2	9
	White males	102	1	...	2	...	1
	White females	164	1	1	1	1	5
	Colored males	15	...	...	...	1	1
	Colored females	29	...	...	...	...	2
74	Other diseases of the nervous system	1349	88	92	73	67	78
	White males	532	50	46	39	33	38
	White females	592	32	37	25	25	29
	Colored males	108	6	7	6	5	4
	Colored females	117	...	2	3	4	7
75	Diseases of the eyes and their annexa	43	14	6	1	3	...
	White males	16	8	3	1	1	...
	White females	18	6	2	...	2	...
	Colored males	2	...	...	...	...	...
	Colored females	7	...	1	...	...	...
76	Diseases of the ears	962	237	154	108	89	58
	White males	461	118	74	39	53	40
	White females	401	101	70	57	31	14
	Colored males	49	9	7	6	3	2
	Colored females	51	9	3	6	2	2
77 to 85	III. DISEASES OF THE CIRCULATORY SYSTEM	94415	563	1583	2096	2201	2060
	White males	34636	265	657	808	923	757
	White females	43556	229	810	1098	1011	964
	Colored males	7257	35	49	81	115	125
	Colored females	8966	34	67	109	152	214

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
...	...	...	...	...	...	...	...	...	...	...	71
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
7	1	2	...	1	2	3	7	1	6	3	72
2	1	...	...	...	...	3	3	...	...	...	
5	...	1	...	1	...	...	4	1	5	3	
...	...	1	...	...	...	...	...	...	...	...	
...	...	...	...	...	2	...	...	...	1	...	
23	32	36	29	31	33	34	26	21	12	16	73
8	12	11	10	9	10	13	7	8	5	5	
13	15	19	17	19	18	16	12	9	7	10	
...	...	2	...	1	2	4	3	...	...	1	
2	5	4	2	2	3	1	4	4	...	...	
71	95	111	122	115	107	90	101	71	44	24	74
29	33	38	40	32	41	40	39	12	16	6	
32	39	50	62	63	51	35	39	38	19	16	
6	6	8	13	10	7	7	8	11	3	1	
4	17	15	7	10	8	8	15	10	6	1	
...	...	...	1	1	1	2	6	4	2	2	75
...	...	...	1	...	...	...	1	1	...	...	
...	...	...	...	...	...	1	4	2	...	1	
...	...	...	...	1	...	...	...	...	1	...	
...	...	...	...	...	1	1	1	1	1	1	
47	35	27	31	32	52	34	22	20	10	6	76
26	21	12	11	17	17	11	7	8	6	1	
16	11	9	15	8	23	16	12	10	4	4	
4	2	2	2	3	5	3	...	...	...	1	
1	1	4	3	4	7	4	3	2	...	...	
2457	3170	4260	5129	6331	8134	9782	12811	13687	12132	8019	77 to 85
835	1047	1316	1654	2188	2791	3628	4811	5264	4687	3005	
1072	1212	1597	1944	2459	3431	4294	5995	6793	6255	4392	
257	440	616	707	737	853	850	897	709	538	248	
293	471	731	824	947	1059	1010	1108	921	652	374	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
77	Pericarditis	624	11	42	31	23	25
	White males	197	2	15	10	12	9
	White females	252	7	22	17	7	9
	Colored males	73	2	2	2	3	...
	Colored females	102	...	3	2	1	7
78	Acute endocarditis	5080	150	302	271	280	268
	White males	1871	75	110	98	110	96
	White females	2269	63	169	149	133	124
	Colored males	412	6	8	10	13	19
	Colored females	528	6	15	14	24	29
79	Organic diseases of the heart	75345	328	1182	1754	1833	1667
	White males	26923	150	503	683	774	620
	White females	35225	133	600	917	848	787
	Colored males	5830	22	35	63	92	98
	Colored females	7367	23	44	91	119	162
80	Angina pectoris	2218	2	8	5	14	25
	White males	977	...	5	1	6	7
	White females	889	2	2	3	4	12
	Colored males	141	...	1	...	2	4
	Colored females	211	...	...	1	2	2
81	Diseases of the arteries, atheroma, aneurism, etc.	9142	...	1	4	12	15
	White males	4020	...	...	3	6	7
	White females	3894	...	1	...	3	2
	Colored males	651	...	...	1	1	2
	Colored females	577	...	...	...	2	4
82	Embolism and thrombosis	1192	10	12	9	17	34
	White males	380	6	5	4	6	8
	White females	628	3	7	4	9	22
	Colored males	84	...	...	1	1	...
	Colored females	100	1	...	...	1	4
83	Diseases of the veins (varices, hemorrhoids, phlebitis, etc.)	455	2	4	1	5	9
	White males	118	...	3	1	2	2
	White females	267	1	1	...	2	4
	Colored males	24	...	...	...	1	1
	Colored females	46	1	...	...	...	2

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	Int'l List Number.
37	36	42	35	45	49	63	62	47	53	23	77
8	10	10	15	13	20	18	20	18	14	3	
18	6	9	8	18	15	22	27	20	30	17	
6	10	11	4	6	5	9	6	4	3	...	
5	10	12	8	8	9	14	9	5	6	3	
293	352	443	431	580	645	714	178	81	67	25	78
90	137	139	143	230	244	282	65	24	19	9	
135	138	185	173	215	278	322	89	43	38	15	
29	28	65	55	58	51	51	10	4	4	1	
39	49	54	60	77	72	59	14	10	6	...	
1970	2561	3403	4202	5089	6571	7790	10702	11055	9390	5848	79
696	824	1035	1354	1711	2161	2794	3898	4083	3499	2138	
860	1008	1309	1602	2018	2838	3450	5085	5622	4919	3229	
191	359	447	559	578	699	705	770	588	431	193	
223	370	612	687	782	873	841	949	762	541	288	
39	65	95	120	166	216	286	368	386	277	146	80
7	27	37	33	72	107	145	157	189	132	52	
19	16	26	42	45	67	110	162	163	128	88	
7	5	18	20	16	15	16	19	12	6	...	
6	17	14	25	33	27	15	30	22	11	6	
45	88	170	195	271	463	751	1267	1873	2136	1851	81
15	26	60	72	115	199	332	584	882	951	768	
10	14	18	36	68	141	295	520	803	1022	961	
14	30	67	62	58	61	57	76	88	84	50	
6	18	25	25	30	62	67	87	100	79	72	
41	38	52	83	113	118	110	143	168	154	90	82
10	13	21	19	32	35	40	57	46	50	28	
19	15	25	49	55	58	55	66	94	91	56	
3	4	3	2	16	14	7	9	12	9	3	
9	6	3	13	10	11	8	11	16	4	3	
14	18	42	40	50	50	49	66	53	29	23	83
4	5	9	7	10	18	13	19	14	7	4	
7	11	21	27	33	27	31	33	33	19	17	
2	1	2	1	3	3	2	6	1	...	1	
1	1	10	5	4	2	3	8	5	3	1	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
84	Diseases of the lymphatic system (lymphangitis, etc.)...	165	57	27	14	6	8
	White males................	83	32	14	6	2	3
	White females..............	56	17	7	5	2	3
	Colored males..............	15	5	2	3	1	1
	Colored females............	11	3	4	...	1	1
85	Hemorrhage; other diseases of the circulatory system.....	194	3	5	7	11	9
	White males................	67	...	2	2	5	5
	White females..............	76	3	1	3	3	1
	Colored males..............	27	...	1	1	1	...
	Colored females............	24	...	1	1	2	3
86 to 98	IV. DISEASES OF THE RESPIRATORY SYSTEM....	71345	13887	2888	1168	1786	2200
	White males................	29140	6208	1218	435	697	812
	White females..............	29443	5611	1195	478	563	666
	Colored males..............	6642	1026	206	121	248	377
	Colored females............	6120	1042	269	134	278	345
86	Diseases of the nasal fossae ...	72	12	6	7	5	2
	White males................	33	7	5	4	3	...
	White females..............	26	2	1	3	2	1
	Colored males..............	9	3	...	...	...	1
	Colored females............	4	...	...	...	...	...
87	Diseases of the larynx.........	594	300	119	24	7	8
	White males................	305	167	64	12	3	3
	White females..............	227	111	51	10	2	2
	Colored males..............	34	9	4	2	1	2
	Colored females............	28	13	...	...	1	1
88	Diseases of the thyroid body...	188	4	5	13	15	16
	White males................	26	2	2	5	5	3
	White females..............	130	2	3	7	5	12
	Colored males..............	5	...	...	...	1	1
	Colored females............	27	...	...	1	4	...
89	Acute bronchitis..............	2636	1218	143	35	37	35
	White males................	943	500	64	14	8	9
	White females..............	1224	494	57	6	12	10
	Colored males..............	196	98	6	7	3	8
	Colored females............	273	126	16	8	14	8

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.
Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
7	4	5	6	2	4	6	6	5	6	2	84
4	1	3	5	...	2	1	5	3	2	...	
1	2	2	1	2	1	4	1	2	4	2	
1	1	...	...	...	1	...	...	...	...	...	
1	....	...	...	...	...	1	...	...	...	...	
11	8	8	17	15	18	13	19	19	20	11	85
1	4	2	6	5	5	3	6	5	13	3	
3	2	2	6	5	6	5	12	13	4	7	
4	2	3	4	2	4	3	1	...	1	...	
3	...	1	1	3	3	2	...	1	2	1	
2572	3048	3484	3876	4111	4883	5550	6285	6358	5524	3725	86 to 98
991	1297	1513	1742	1879	2140	2302	2468	2333	1929	1176	
781	855	989	1212	1344	1814	2362	2928	3334	3065	2246	
480	515	586	557	533	519	413	440	288	217	116	
320	381	396	365	355	410	473	449	403	313	187	
3	1	3	1	6	2	1	...	9	7	7	86
3	...	...	1	2	...	...	...	3	3	2	
...	...	1	...	2	1	1	...	4	3	5	
...	...	2	...	1	1	...	...	...	1	...	
...	1	...	...	1	...	...	...	2	...	...	
16	17	14	14	13	10	11	7	19	9	6	87
3	4	8	6	6	2	6	6	9	5	1	
4	11	4	3	2	3	5	1	10	4	4	
5	2	2	3	2	2	...	...	...	...	...	
4	...	...	2	3	3	...	...	...	...	1	
10	12	13	12	15	15	21	12	13	8	4	88
1	1	1	...	2	1	...	2	1	...	...	
9	7	10	11	8	11	16	9	9	7	4	
...	2	...	...	...	...	1	...	...	...	...	
...	2	2	1	5	3	4	1	3	1	...	
42	39	49	44	49	59	103	146	197	231	209	89
10	10	15	11	24	21	30	54	59	66	48	
10	7	14	13	11	29	62	79	124	149	147	
13	8	9	10	10	3	6	5	3	2	5	
9	14	11	10	4	6	5	8	11	14	9	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
90	Chronic bronchitis	4224	75	63	30	57	92
	White males	1453	29	22	5	9	24
	White females	2070	24	25	12	14	16
	Colored males	286	10	6	7	9	16
	Colored females	415	12	10	6	25	36
91	Bronchopneumonia	16224	7007	972	220	222	216
	White males	6338	3096	387	82	69	60
	White females	7505	2896	426	90	79	86
	Colored males	1152	514	77	19	39	31
	Colored females	1229	501	82	29	35	39
92	Pneumonia—lobar and undefined	41707	4874	1430	754	1263	1608
	White males	17659	2203	605	286	524	630
	White females	16185	1930	575	316	398	463
	Colored males	4318	375	101	72	164	286
	Colored females	3545	366	149	80	177	229
93	Pleurisy	1985	246	92	54	112	128
	White males	853	145	41	18	46	53
	White females	740	86	39	22	38	41
	Colored males	213	12	7	8	17	20
	Colored females	179	3	5	6	11	14
94	Pulmonary congestion, pulmonary apoplexy	939	95	21	10	17	21
	White males	319	35	10	4	6	7
	White females	456	48	7	2	6	6
	Colored males	85	4	2	2	3	3
	Colored females	79	8	2	2	2	5
95	Gangrene of the lung	171	3	3	4	8	11
	White males	100	1	2	2	3	3
	White females	53	2	1	1	1	6
	Colored males	11	...	...	1	2	2
	Colored females	7	...	...	...	2	...
96	Asthma	1594	36	15	4	9	13
	White males	607	19	7	2	6	2
	White females	583	8	3	1	...	5
	Colored males	182	1	2	...	1	1
	Colored females	222	8	3	1	2	5

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.
Mortality Experience, 1911 to 1916.

Age Periods.											
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	Int'l List Number.
96	110	105	122	168	250	365	537	722	798	634	90
22	28	44	36	64	97	135	200	253	267	218	
25	24	26	45	58	101	176	266	395	484	379	
22	21	12	19	26	29	21	26	29	22	11	
27	37	23	22	20	23	33	45	45	25	26	
258	282	313	384	456	614	803	1100	1270	1218	889	91
91	107	118	161	188	246	308	370	419	389	247	
96	93	115	143	180	260	383	598	754	727	579	
35	41	48	44	43	53	47	68	33	35	25	
36	41	32	36	45	55	65	64	64	67	38	
1922	2315	2664	2939	2992	3426	3687	3894	3559	2732	1648	92
788	1053	1215	1387	1418	1533	1563	1575	1349	984	546	
575	630	713	883	971	1266	1528	1766	1778	1444	949	
352	384	458	418	386	359	286	291	192	133	61	
207	248	278	251	217	268	310	262	240	171	92	
111	119	134	146	136	160	140	141	127	84	55	93
35	45	45	58	65	69	65	63	51	33	21	
37	33	51	52	43	63	56	51	61	42	25	
21	24	16	26	17	16	7	9	8	3	2	
18	17	22	10	11	12	12	18	7	6	7	
25	36	40	48	41	43	83	88	112	139	120	94
5	9	16	21	10	17	34	26	38	47	34	
10	15	9	15	19	11	33	44	64	85	82	
8	8	7	7	5	9	8	10	5	1	3	
2	4	8	5	7	6	8	8	5	6	1	
7	13	13	13	20	19	20	15	8	12	2	95
2	8	5	9	14	14	12	9	5	10	1	
3	5	7	4	5	3	6	5	3	...	1	
1	...	1	...	1	1	1	1	...	...	...	
1	...	...	...	...	1	1	...	...	2	...	
29	52	67	76	123	166	186	236	243	223	116	96
12	7	18	20	41	72	67	95	104	94	41	
3	18	28	28	30	42	72	83	105	95	62	
8	14	9	13	19	28	22	24	16	17	7	
6	13	12	15	33	24	25	34	18	17	6	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
97	Pulmonary emphysema	123	...	1	...	3	3
	White males	60	...	1	...	2	2
	White females	39	...	...	...	...	1
	Colored males	18	...	...	...	1	...
	Colored females	6	...	...	...	...	...
98	Other diseases of the respiratory system (tuberculosis excepted)	888	17	18	13	31	47
	White males	444	4	8	1	13	16
	White females	205	8	7	8	6	17
	Colored males	133	...	1	3	7	6
	Colored females	106	5	2	1	5	8
99 to 118	V. DISEASES OF THE DIGESTIVE SYSTEM	49146	11153	2245	1562	1649	1676
	White males	19862	5356	1029	735	738	649
	White females	21433	4730	944	605	594	659
	Colored males	3526	565	131	115	139	138
	Colored females	4325	502	141	107	178	230
99	Diseases of the mouth and annexa	200	45	22	7	4	10
	White males	73	28	10	3	...	5
	White females	90	15	12	3	3	3
	Colored males	15	1	...	...	...	1
	Colored females	22	1	...	1	1	1
100	Diseases of the pharynx	1153	277	293	116	82	70
	White males	545	149	144	45	43	32
	White females	449	105	124	54	34	20
	Colored males	65	9	10	7	1	6
	Colored females	94	14	15	10	4	12
101	Diseases of the esophagus	124	16	5	3	...	2
	White males	70	8	4	...	...	1
	White females	45	8	1	2	...	1
	Colored males	5	...	...	1	...	...
	Colored females	4	...	...	...	...	...
02	Ulcer of the stomach	2159	16	16	14	51	108
	White males	929	7	6	6	18	39
	White females	806	7	7	5	25	47
	Colored males	189	1	...	...	3	7
	Colored females	235	1	3	3	5	15

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
4	3	6	7	5	10	16	21	16	16	12	97
...	1	...	2	2	7	9	10	7	9	8	
...	1	2	1	1	2	6	7	8	7	3	
3	1	4	3	2	1	1	2	...	...	...	
1	...	...	1	...	...	...	2	1	...	1	
49	49	63	70	87	109	114	88	63	47	23	98
19	24	28	30	43	61	73	58	35	22	9	
9	11	9	14	14	22	18	19	19	18	6	
12	10	18	14	21	17	13	4	2	3	2	
9	4	8	12	9	9	10	7	7	4	6	
1943	2145	2644	2919	3140	3626	3501	3694	3225	2520	1504	99 to 118
670	699	886	1094	1239	1468	1394	1392	1127	871	515	
782	836	1075	1159	1300	1534	1555	1742	1670	1389	859	
182	231	311	307	268	284	258	245	194	105	53	
309	379	372	359	333	340	294	315	234	155	77	
14	15	13	10	14	9	12	7	5	7	6	99
2	...	4	2	4	2	4	3	2	2	2	
7	9	7	4	6	3	6	3	3	2	4	
4	2	...	2	1	1	1	...	...	2	...	
1	4	2	2	3	3	1	1	...	1	...	
53	48	40	41	32	20	23	20	17	10	11	100
22	17	12	26	13	8	7	10	6	5	6	
20	19	16	7	10	8	10	8	6	4	4	
5	3	7	3	4	3	4	...	2	...	1	
6	9	5	5	5	1	2	2	3	1	...	
1	2	4	9	9	13	15	11	12	15	7	101
...	1	2	5	6	11	8	6	8	6	4	
1	1	2	2	2	2	4	5	4	7	3	
...	...	...	...	1	...	2	...	...	1	...	
...	...	...	2	...	...	1	...	...	1	...	
165	168	241	234	224	224	212	182	176	89	39	102
62	72	97	107	114	115	100	82	61	28	15	
59	55	86	70	70	74	79	72	85	46	19	
17	17	28	31	21	13	14	13	14	7	3	
27	24	30	26	19	22	19	15	16	8	2	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR

Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
103	Other diseases of the stomach (cancer excepted)	4921	545	154	75	64	122
	White males	1480	249	54	16	14	21
	White females	1878	206	60	20	20	41
	Colored males	628	42	18	20	15	20
	Colored females	935	48	22	19	15	40
104	Diarrhea and enteritis (under 2 years)	6684	6684	...	...	...	...
	White males	3199	3199	...	...	...	...
	White females	2928	2928	...	...	...	...
	Colored males	314	314	...	...	...	...
	Colored females	243	243	...	...	...	...
105	Diarrhea and enteritis (2 years and over)	7489	2736	638	157	117	150
	White males	2830	1284	278	64	33	40
	White females	3402	1151	276	59	39	75
	Colored males	491	151	31	12	22	11
	Colored females	766	150	53	22	23	24
106	Ankylostomiasis	12	2	2	2	2	1
	White males	5	1	...	...	2	1
	White females	4	1	...	1	...	...
	Colored males	1	...	1	...	...	...
	Colored females	2	...	1	1	...	...
107	Intestinal parasites	57	37	13	2	...	1
	White males	14	12	1	1	...	...
	White females	25	12	8	1	...	1
	Colored males	7	4	3	...	...	...
	Colored females	11	9	1	...	...	...
108	Appendicitis and typhlitis	6345	212	734	916	954	700
	White males	2832	103	358	470	493	340
	White females	2622	99	324	367	338	257
	Colored males	423	9	30	50	58	43
	Colored females	468	1	22	29	65	60
A109	Hernia	2357	36	15	13	18	40
	White males	788	25	13	10	9	23
	White females	1287	4	...	1	4	5
	Colored males	170	6	2	1	4	9
	Colored females	112	1	...	1	1	3

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
181	195	280	318	347	447	430	515	510	450	288	103
42	45	71	74	92	139	128	156	165	135	79	
51	46	88	95	101	135	139	211	241	251	173	
33	38	56	67	66	63	62	53	44	19	12	
55	66	65	82	88	110	101	95	60	45	24	
...	...	...	...	...	...	...	...	...	...	...	104
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
185	200	245	237	219	284	355	508	526	552	380	105
70	59	82	77	63	88	122	145	138	160	127	
69	80	90	90	90	124	149	257	303	331	219	
16	20	26	28	22	23	39	33	29	17	11	
30	41	47	42	44	49	45	73	56	44	23	
1	...	2	...	...	...	...	...	...	...	...	106
...	...	1	...	...	...	...	...	...	...	...	
1	...	1	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	1	...	...	1	...	...	1	1	...	...	107
...	...	...	...	...	...	...	...	...	...	...	
...	1	...	...	1	...	...	...	1	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	1	...	...	...	
581	470	384	339	265	277	179	166	80	65	23	108
242	157	133	129	93	92	82	66	37	25	12	
246	201	157	135	129	139	73	79	34	33	11	
40	43	40	32	22	28	9	11	4	4	...	
53	69	54	43	21	18	15	10	5	3	...	
37	67	98	157	217	297	297	369	318	225	153	A109
15	25	32	43	52	89	78	118	109	78	69	
10	22	47	89	138	174	188	215	180	134	76	
9	14	8	11	9	16	21	24	19	10	7	
3	6	11	14	18	18	10	12	10	3	1	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
B109	Intestinal obstruction..........	3162	313	152	86	122	133
	White males................	1039	180	75	49	55	50
	White females..............	1580	111	54	24	39	61
	Colored males..............	209	9	14	9	14	6
	Colored females.............	334	13	9	4	14	16
110	Other diseases of the intestines	1006	54	29	20	39	43
	White males................	316	30	11	13	18	14
	White females..............	437	16	11	5	16	20
	Colored males..............	99	4	4	1	2	5
	Colored females.............	154	4	3	1	3	4
111	Acute yellow atrophy of the liver....................	236	5	6	8	4	30
	White males................	75	2	4	4	1	7
	White females..............	122	3	2	4	1	18
	Colored males..............	12	...	...	...	1	...
	Colored females.............	27	...	...	...	1	5
112	Hydatid tumor of the liver....	11	1	...	...	...	...
	White males................	2	...	...	...	...	...
	White females..............	7	1	...	...	...	...
	Colored males..............	1	...	...	...	...	...
	Colored females.............	1	...	...	...	...	...
*113	Cirrhosis of the liver..........	8064	19	25	29	29	55
	White males................	4426	11	10	11	9	25
	White females..............	2715	4	9	11	9	11
	Colored males..............	574	1	3	4	5	10
	Colored females.............	349	3	3	3	6	9
114	Biliary calculi................	1591	2	1	2	3	18
	White males................	217	...	...	1	...	2
	White females..............	1250	1	1	1	1	8
	Colored males..............	36	...	...	...	1	3
	Colored females.............	88	1	...	...	1	5
115	Other diseases of the liver.....	2181	78	55	35	42	74
	White males................	652	36	29	13	13	26
	White females..............	1122	26	14	13	16	31
	Colored males..............	195	8	9	3	8	9
	Colored females.............	212	8	3	6	5	8

* Includes alcoholic cirrhosis of the liver.

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	Int'l List Number.
176	180	198	182	179	252	260	309	265	206	149	B109
48	38	29	35	44	82	77	89	82	62	44	
71	86	108	98	98	132	146	175	158	126	93	
14	12	17	15	11	19	18	22	15	6	8	
43	44	44	34	26	19	19	23	10	12	4	
73	69	87	82	88	89	58	92	70	66	47	110
13	17	19	22	27	23	22	28	16	26	17	
41	24	38	36	34	37	25	44	37	29	24	
3	5	11	11	9	12	4	10	8	8	2	
16	23	19	13	18	17	7	10	9	3	4	
21	24	21	16	17	17	12	20	9	18	8	111
4	3	3	6	9	6	2	8	4	9	3	
12	13	12	6	7	10	7	9	4	9	5	
1	2	1	4	1	1	1	...	...	...	...	
4	6	5	...	...	...	2	3	1	...	...	
3	...	2	2	...	1	...	...	...	2	...	112
...	...	...	...	...	...	...	...	...	2	...	
3	...	1	1	...	1	...	...	...	...	...	
...	...	...	1	...	...	...	...	...	...	...	
...	...	1	...	...	...	...	...	...	...	...	
186	377	633	890	1072	1170	1093	949	791	532	214	113
92	196	321	473	608	704	645	553	408	272	88	
54	112	216	302	346	353	354	304	303	218	109	
24	42	71	72	67	79	59	64	44	23	6	
16	27	25	43	51	34	35	28	36	19	11	
38	69	91	136	171	222	251	235	167	115	70	114
5	9	10	22	28	22	32	30	23	17	16	
26	48	65	103	133	181	207	193	136	93	53	
3	4	5	2	3	6	5	1	1	2	...	
4	8	11	9	7	13	7	11	7	3	1	
95	139	174	152	203	224	230	229	225	141	85	115
35	39	38	45	64	64	60	67	59	37	27	
39	64	85	70	95	119	132	131	141	91	55	
8	19	26	19	25	18	16	12	11	4	...	
13	17	25	18	19	23	22	19	14	9	3	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
116	Diseases of the spleen	77	6	4	3	2	3
	White males	39	4	2	1	2	2
	White females	34	2	1	2	...	1
	Colored males	2	...	1	...	...	...
	Colored females	2	...	...	...	...	...
117	Simple peritonitis (non-puerperal)	1013	65	75	64	104	105
	White males	210	27	28	23	23	17
	White females	490	29	36	28	45	54
	Colored males	74	5	5	7	4	7
	Colored females	239	4	6	6	32	27
118	Other diseases of the digestive system (cancer and tuberculosis excepted)	304	4	6	10	12	11
	White males	121	1	2	5	5	4
	White females	140	1	4	4	4	5
	Colored males	16	1	...	...	1	1
	Colored females	27	1	...	1	2	1
119 to 133	VI. NONVENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA	64919	618	593	484	933	1634
	White males	24602	294	274	171	305	505
	White females	28216	219	246	244	437	814
	Colored males	5335	60	37	35	52	90
	Colored females	6766	45	36	34	139	225
119	Acute nephritis	5120	316	246	130	201	315
	White males	1969	146	118	43	79	147
	White females	1954	117	94	65	88	121
	Colored males	549	28	19	9	18	21
	Colored females	648	25	15	13	16	26
120	Bright's disease	52067	259	312	321	524	835
	White males	20762	124	141	114	209	321
	White females	22650	91	137	164	240	367
	Colored males	4234	29	15	24	31	63
	Colored females	4421	15	19	19	44	84
121	Chyluria	3	...	1	...	...	...
	White males	...	...	...	...	...	...
	White females	2	...	1	...	...	...
	Colored males	1	...	...	...	...	...
	Colored females	...	...	...	...	...	...

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.
Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
6	5	8	7	6	7	7	4	5	1	3	116
2	3	3	5	2	4	5	2	...	1	1	
4	2	5	1	3	2	2	2	5	...	2	
...	...	...	1	...	...	...	...	...	...	...	
...	...	...	...	1	1	...	...	...	...	...	
105	89	90	64	47	45	44	49	28	21	18	117
7	7	12	7	10	11	10	16	2	5	5	
61	44	40	29	21	24	24	20	17	11	7	
4	7	13	5	5	1	2	2	2	2	3	
33	31	25	23	11	9	8	11	7	3	3	
22	27	33	43	29	28	23	28	20	5	3	118
9	11	17	16	10	8	12	13	7	1	...	
7	9	11	21	16	16	10	14	12	4	2	
1	3	2	3	1	1	1	...	1	...	...	
5	4	3	3	2	3	...	1	...	...	1	
2184	3016	4048	4841	5614	6437	7367	8374	8205	6541	4030	119 to 133
610	884	1214	1562	1926	2416	2923	3472	3430	2858	1758	
1040	1347	1715	2049	2481	2717	3089	3466	3596	2886	1870	
132	237	363	456	506	617	698	732	646	479	195	
402	548	756	774	701	687	657	704	533	318	207	
330	367	414	439	429	450	446	397	312	219	109	119
133	153	154	146	148	143	166	150	123	82	38	
122	127	148	174	175	178	144	152	121	87	41	
30	41	50	53	50	51	59	47	33	28	12	
45	46	62	66	56	78	77	48	35	22	18	
1187	1883	2719	3605	4472	5491	6435	7424	7252	5776	3572	120
442	691	1001	1371	1709	2174	2590	3039	2934	2417	1485	
530	770	1088	1427	1859	2282	2751	3158	3335	2699	1752	
79	176	286	367	420	507	569	613	524	375	156	
136	246	344	440	484	528	525	614	459	285	179	
...	...	...	1	...	...	...	...	1	...	...	121
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	1	...	...	
...	...	...	1	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
122	Other diseases of the kidneys and annexa	861	32	20	16	23	38
	White males	302	17	7	8	8	12
	White females	401	10	9	5	10	21
	Colored males	86	2	3	2	1	1
	Colored females	72	3	1	1	4	4
123	Calculi of the urinary passages.	322	1	6	4	10	20
	White males	174	1	4	3	4	16
	White females	116	...	2	1	4	3
	Colored males	24	...	...	...	1	1
	Colored females	8	...	...	...	1	...
124	Diseases of the bladder	611	5	2	2	4	12
	White males	320	2	2	1	1	5
	White females	141	...	...	1	2	5
	Colored males	109	1	...	...	1	1
	Colored females	41	2	...	...	...	1
125	Diseases of the urethra, urinary abscess, etc	202	...	1	...	1	4
	White males	110	...	1	...	1	2
	White females	13	...	...	...	...	1
	Colored males	77	...	...	...	...	1
	Colored females	2	...	...	...	...	...
126	Diseases of the prostate	1162	...	...	...	2	3
	White males	928	...	...	...	2	1
	White females	...	...	...	...	...	...
	Colored males	234	...	...	...	...	2
	Colored females	...	...	...	...	...	...
127	Nonvenereal diseases of the male genital organs	56	4	1	2	1	1
	White males	35	4	1	2	1	1
	White females	...	...	...	...	...	...
	Colored males	21	...	...	...	...	...
	Colored females	...	...	...	...	...	...
128	Uterine hemorrhage (non-puerperal)	67	...	...	1	3	4
	White males	...	...	...	...	...	...
	White females	53	...	...	1	3	4
	Colored males	...	...	...	...	...	...
	Colored females	14	...	...	...	...	...

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
49	46	75	76	66	83	75	76	82	60	44	122
14	14	23	21	19	23	26	29	36	28	17	
27	25	40	34	36	43	32	32	31	25	21	
3	1	8	14	8	10	10	9	5	6	3	
5	6	4	7	3	7	7	6	10	1	3	
15	21	30	18	22	29	37	43	29	25	12	123
9	11	17	5	11	13	18	24	18	13	7	
4	7	13	10	10	13	15	15	8	7	4	
2	2	...	...	1	1	4	4	2	5	1	
...	1	...	3	...	2	...	...	1	...	...	
19	13	15	21	37	36	50	87	113	121	74	124
3	6	4	6	13	13	27	48	68	78	43	
6	4	5	6	10	12	7	17	20	23	23	
7	2	4	5	9	9	11	17	21	16	5	
3	1	2	4	5	2	5	5	4	4	3	
15	20	21	12	29	20	31	20	21	2	5	125
5	8	8	4	13	14	18	16	15	2	3	
1	2	2	1	3	...	2	...	...	...	1	
9	10	11	7	12	6	10	4	6	...	1	
...	...	...	...	1	...	1	...	...	...	...	
3	2	6	14	16	61	108	200	282	284	181	126
2	...	5	8	11	30	77	163	229	236	164	
...	...	...	...	...	...	...	...	...	...	...	
1	2	1	6	5	31	31	37	53	48	17	
...	...	...	...	...	...	...	...	...	...	...	
3	4	4	4	2	8	5	4	9	3	1	127
2	1	1	1	1	6	1	3	7	2	1	
...	...	...	...	...	...	...	...	...	...	...	
1	3	3	3	1	2	4	1	2	1	...	
...	...	...	...	...	...	...	...	...	...	...	
9	11	9	8	7	4	3	3	2	1	2	128
...	...	...	...	...	...	...	...	...	...	...	
7	9	6	6	6	3	3	3	...	...	2	
...	...	...	...	...	...	...	...	...	...	...	
2	2	3	2	1	1	...	...	2	1	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
129	Uterine tumor (noncancerous)..	1335	...	...	...	8	17
	White males................	...	...	...	...	...	...
	White females..............	705	...	...	...	2	9
	Colored males..............	...	...	...	...	...	...
	Colored females............	630	...	...	...	6	8
130	Other diseases of the uterus....	786	...	1	5	46	72
	White males................	...	...	...	...	...	...
	White females..............	600	...	1	5	28	60
	Colored males..............	...	...	...	...	...	...
	Colored females............	186	...	...	...	18	12
131	Cysts and other tumors of the ovary................	508	...	1	1	7	30
	White males................	...	...	...	...	...	...
	White females..............	400	...	1	1	6	27
	Colored males..............	...	...	...	...	...	...
	Colored females............	108	...	...	...	1	3
132	Salpingitis and other diseases of the female genital organs...	1782	1	2	2	103	282
	White males................	...	...	...	...	...	...
	White females..............	1151	1	1	1	54	196
	Colored males..............	...	...	...	...	...	...
	Colored females............	631	...	1	1	49	86
133	Nonpuerperal diseases of the breast (cancer excepted)...	37	...	...	...	...	1
	White males................	2	...	...	...	...	...
	White females..............	30	...	...	...	...	...
	Colored males..............	...	...	...	...	...	...
	Colored females............	5	...	...	...	...	1
134 to 141	VII. THE PUERPERAL STATE...............	10151	...	...	12	979	2246
	White males................	...	...	...	...	...	...
	White females..............	8359	...	...	5	660	1865
	Colored males..............	...	...	...	...	...	...
	Colored females............	1792	...	...	7	319	381
134	Accidents of pregnancy.......	885	...	...	1	43	161
	White males................	...	...	...	...	...	...
	White females..............	712	...	...	1	36	122
	Colored males..............	...	...	...	...	...	...
	Colored females............	173	...	...	...	7	39

Condition. Classified by Color, Sex and by Age Period.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
53	139	253	265	270	123	85	56	30	24	12	129
...	...	...	...	...	...	...	...	...	...	...	
18	56	89	128	178	84	58	37	17	20	9	
...	...	...	...	...	...	...	...	...	...	...	
35	83	164	137	92	39	27	19	13	4	3	
112	110	101	97	83	52	39	28	25	7	8	130
...	...	...	...	...	...	...	...	...	...	...	
76	82	75	74	69	41	32	21	23	6	7	
...	...	...	...	...	...	...	...	...	...	...	
36	28	26	23	14	11	7	7	2	1	1	
52	56	76	67	60	39	29	24	39	18	9	131
...	...	...	...	...	...	...	...	...	...	...	
33	40	53	52	51	26	28	22	33	18	9	
...	...	...	...	...	...	...	...	...	...	...	
19	16	23	15	9	13	1	2	6	...	...	
332	342	318	210	117	37	21	8	7	...	...	132
...	...	...	...	...	...	...	...	...	...	...	
211	223	191	134	82	31	14	6	6	...	...	
...	...	...	...	...	...	...	...	...	...	...	
121	119	127	76	35	6	7	2	1	...	...	
5	2	7	4	4	4	3	4	1	1	1	133
...	...	1	...	1	...	...	...	...	...	...	
5	2	5	3	2	4	3	3	1	1	1	
...	...	...	...	...	...	...	...	...	...	...	
...	...	1	1	1	...	...	1	...	...	...	
2357	2171	1644	659	76	6	1	...	...	...	...	134 to 141
...	...	...	...	...	...	...	...	...	...	...	
1986	1822	1392	563	62	3	1	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
371	349	252	96	14	3	...	...	...	...	...	
218	220	173	59	9	1	...	...	...	...	...	134
...	...	...	...	...	...	...	...	...	...	...	
178	179	141	48	7	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
40	41	32	11	2	1	...	...	...	...	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
135	Puerperal hemorrhage	791	...	...	...	25	109
	White males	...	...	...	...	...	...
	White females	681	...	...	...	22	86
	Colored males	...	...	...	...	...	...
	Colored females	110	...	...	...	3	23
136	Other accidents of labor	1036	...	...	3	61	200
	White males	...	...	...	...	...	...
	White females	838	...	...	2	38	159
	Colored males	...	...	...	...	...	...
	Colored females	198	...	...	1	23	41
137	Puerperal septicemia	4348	...	...	4	449	1036
	White males	...	...	...	...	...	...
	White females	3512	...	...	1	291	849
	Colored males	...	...	...	...	...	...
	Colored females	836	...	...	3	158	187
138	Puerperal albuminuria and convulsions	2675	...	...	4	385	671
	White males	...	...	...	...	...	...
	White females	2249	...	...	1	259	584
	Colored males	...	...	...	...	...	...
	Colored females	426	...	...	3	126	87
139	Puerperal phlegmasia alba dolens, embolus, sudden death	369	...	...	...	13	61
	White males	...	...	...	...	...	...
	White females	327	...	...	...	12	57
	Colored males	...	...	...	...	...	...
	Colored females	42	...	...	...	1	4
140	Following childbirth (not otherwise defined)	43	...	...	...	2	8
	White males	...	...	...	...	...	...
	White females	36	...	...	...	1	8
	Colored males	...	...	...	...	...	...
	Colored females	7	...	...	...	1	...
141	Puerperal diseases of the breast	4	...	...	...	1	...
	White males	...	...	...	...	...	...
	White females	4	...	...	...	1	...
	Colored males	...	...	...	...	...	...
	Colored females	...	...	...	...	...	...

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.
Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
171	188	199	87	11	1	...	...	...	...	...	135
...	...	...	...	...	...	...	...	...	...	...	
147	160	176	79	10	1	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
24	28	23	8	1	...	...	...	...	...	...	
233	235	196	95	10	3	...	...	...	...	...	136
...	...	...	...	...	...	...	...	...	...	...	
193	191	162	84	7	2	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
40	44	34	11	3	1	...	...	...	...	...	
1087	926	602	221	22	...	1	...	...	...	...	137
...	...	...	...	...	...	...	...	...	...	...	
896	771	502	185	16	...	1	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
191	155	100	36	6	...	...	...	...	...	...	
542	509	383	164	17	...	...	...	...	...	...	138
...	...	...	...	...	...	...	...	...	...	...	
484	439	327	140	15	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
58	70	56	24	2	...	...	...	...	...	...	
92	82	85	29	6	1	...	...	...	...	...	139
...	...	...	...	...	...	...	...	...	...	...	
76	74	79	23	6	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
16	8	6	6	...	1	...	...	...	...	...	
12	11	5	4	1	...	...	...	...	...	...	140
...	...	...	...	...	...	...	...	...	...	...	
10	8	4	4	1	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
2	3	1	...	...	...	...	...	...	...	...	
2	...	1	...	...	...	...	...	...	...	...	141
...	...	...	...	...	...	...	...	...	...	...	
2	...	1	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
142 to 145	VIII. DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.....	1529	84	41	23	37	41
	White males................	632	35	13	11	23	19
	White females..............	602	45	24	9	7	11
	Colored males..............	134	2	3	2	5	5
	Colored females............	161	2	1	1	2	6
142	Gangrene....................	681	23	18	3	5	12
	White males................	248	10	4	1	2	5
	White females..............	278	12	11	1	...	3
	Colored males..............	73	...	3	1	3	3
	Colored females............	82	1	...	...	...	1
143	Furuncle....................	215	8	...	10	9	7
	White males................	133	4	...	6	7	4
	White females..............	70	4	...	4	1	1
	Colored males..............	3	...	...	...	1	...
	Colored females............	9	...	...	...	...	2
144	Acute abscess............ ...	360	41	19	8	22	16
	White males................	176	15	7	3	14	9
	White females..............	126	24	11	4	5	3
	Colored males..............	37	2	...	1	1	2
	Colored females............	21	...	1	...	2	2
145	Other diseases of the skin and annexa..................	273	12	4	2	1	6
	White males................	75	6	2	1	...	1
	White females..............	128	5	2	...	1	4
	Colored males..............	21	...	...	...	...	...
	Colored females............	49	1	...	1	...	1
146 to 149	IX. DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION.......	1266	148	180	180	126	58
	White males................	649	77	78	112	90	29
	White females..............	480	62	92	61	27	21
	Colored males..............	64	3	4	3	6	2
	Colored females............	73	6	6	4	3	6
146	Diseases of the bones (tuberculosis excepted)..........	1109	140	169	168	116	53
	White males................	576	73	74	104	81	27
	White females..............	415	58	85	58	26	20
	Colored males..............	58	3	4	3	6	2
	Colored females............	60	6	6	3	3	4

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
32	67	55	82	103	125	128	182	183	204	142	142 to 145
15	28	25	34	49	53	46	69	63	82	67	
11	19	18	28	34	41	50	75	82	88	60	
...	10	4	12	9	17	12	15	15	15	8	
6	10	8	8	11	14	20	23	23	19	7	
2	18	14	18	26	52	47	99	109	136	99	142
1	5	6	9	8	18	19	33	32	50	45	
1	6	5	4	11	16	15	43	49	60	41	
...	3	1	2	3	11	4	10	10	12	7	
...	4	2	3	4	7	9	13	18	14	6	
6	10	11	19	25	33	21	18	18	13	7	143
5	6	7	10	15	16	14	11	11	12	5	
1	4	3	8	7	15	5	7	7	1	2	
...	...	1	...	...	...	1	...	...	...	...	
...	...	...	1	3	2	1	...	...	...	...	
11	31	17	31	28	24	27	38	19	17	11	144
6	16	9	12	21	14	6	19	10	7	8	
4	6	5	11	3	5	14	14	7	8	2	
...	6	1	7	2	4	6	3	1	1	...	
1	3	2	1	2	1	1	2	1	1	1	
13	8	13	14	24	16	33	27	37	38	25	145
3	1	3	3	5	5	7	6	10	13	9	
5	3	5	5	13	5	16	11	19	19	15	
...	1	1	3	4	2	1	2	4	2	1	
5	3	4	3	2	4	9	8	4	4	...	
74	50	51	50	64	55	62	54	49	37	28	146 to 149
39	18	19	20	35	23	27	28	22	21	11	
28	19	20	23	18	20	25	20	21	10	13	
4	7	8	4	5	3	5	3	3	3	1	
3	6	4	3	6	9	5	3	3	3	3	
58	43	43	42	54	44	49	42	38	27	23	146
32	15	16	17	30	18	21	23	18	18	9	
20	16	16	19	15	16	20	15	14	6	11	
4	7	7	3	5	2	4	3	3	1	1	
2	5	4	3	4	8	4	1	3	2	2	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
147	Diseases of the joints (tuberculosis and rheumatism excepted)	120	6	9	12	7	4
	White males	53	2	3	8	6	2
	White females	53	4	6	3	1	...
	Colored males	5	...	...	...	...	...
	Colored females	9	...	...	1	...	2
148	Amputations	6	...	...	...	1	...
	White males	5	...	...	...	1	...
	White females	...	...	...	...	...	...
	Colored males	...	...	...	...	...	...
	Colored females	1	...	...	...	...	...
149	Other diseases of the organs of locomotion	31	2	2	...	2	1
	White males	15	2	1	...	2	...
	White females	12	...	1	...	...	1
	Colored males	1	...	...	...	...	...
	Colored females	3	...	...	...	...	...
150	X. MALFORMATIONS	320	181	66	21	15	7
	White males	177	103	32	14	10	6
	White females	121	63	30	6	5	1
	Colored males	15	11	3	1	...	...
	Colored females	7	4	1	...	...	...
150	Congenital malformations (stillbirths not included)	320	181	66	21	15	7
	White males	177	103	32	14	10	6
	White females	121	63	30	6	5	1
	Colored males	15	11	3	1	...	...
	Colored females	7	4	1	...	...	...
154	XII. OLD AGE	3480	...	...	...	...	...
	White males	994	...	...	...	...	...
	White females	1889	...	...	...	...	...
	Colored males	220	...	...	...	...	...
	Colored females	377	...	...	...	...	...
154	Senility	3480	...	...	...	...	...
	White males	994	...	...	...	...	...
	White females	1889	...	...	...	...	...
	Colored males	220	...	...	...	...	...
	Colored females	377	...	...	...	...	...

Condition. Classified by Color, Sex and by Age Period.
Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
13	6	8	7	9	8	10	8	6	5	2	147
5	3	3	2	5	3	4	4	2	...	1	
8	2	4	4	2	3	5	3	4	4	...	
...	...	1	1	...	1	1	...	...	1	...	
...	1	...	...	2	1	...	1	...	...	1	
...	...	...	...	...	...	3	1	...	1	...	148
...	...	...	...	...	...	2	1	...	1	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	1	...	...	...	...	
3	1	...	1	1	3	...	3	5	4	3	149
2	...	...	1	...	2	...	...	2	2	1	
...	1	...	...	1	1	...	2	3	...	2	
...	...	...	...	...	...	...	...	...	1	...	
1	...	...	...	...	...	...	1	...	1	...	
6	11	4	3	3	1	...	1	...	...	1	150
3	3	3	1	1	1	...	...	...	...	...	
2	8	1	1	2	...	...	1	...	...	1	
...	...	...	...	...	...	...	...	...	...	...	
1	...	...	1	...	...	...	...	...	...	...	
6	11	4	3	3	1	...	1	...	...	1	150
3	3	3	1	1	1	...	...	...	...	...	
2	8	1	1	2	...	...	1	...	...	1	
...	...	...	...	...	...	...	...	...	...	...	
1	...	...	1	...	...	...	...	...	...	...	
...	...	...	...	6	20	72	287	605	1167	1323	154
...	...	...	...	1	6	16	65	159	344	403	
...	...	...	...	1	9	33	132	317	652	745	
...	...	...	...	2	4	8	32	48	71	55	
...	...	...	...	2	1	15	58	81	100	120	
...	...	...	...	6	20	72	287	605	1167	1323	154
...	...	...	...	1	6	16	65	159	344	403	
...	...	...	...	1	9	33	132	317	652	745	
...	...	...	...	2	4	8	32	48	71	55	
...	...	...	...	2	1	15	58	81	100	120	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
155 to 186	XIII. EXTERNAL CAUSES*:	50712	4259	3788	2809	4113	4847
	White males	31381	2160	2344	2004	2717	3174
	White females	11618	1662	1064	444	712	747
	Colored males	5610	238	216	281	556	670
	Colored females	2103	199	164	80	128	256
155 to 163	Suicide (total)	6542	...	...	27	364	707
	White males	4309	...	...	15	135	391
	White females	1748	...	...	8	195	226
	Colored males	308	...	...	2	16	45
	Colored females	177	...	...	2	18	45
155	Suicide by poison	2352	...	...	8	199	338
	White males	1280	...	...	1	45	145
	White females	874	...	...	6	137	152
	Colored males	89	...	...	1	4	9
	Colored females	109	...	...	...	13	32
156	Suicide by asphyxia	1040	...	...	2	26	47
	White males	633	...	...	1	12	29
	White females	386	...	...	1	14	16
	Colored males	14	...	...	...	...	...
	Colored females	7	...	...	...	...	2
157	Suicide by hanging or strangulation	761	...	...	7	23	42
	White males	626	...	...	7	16	30
	White females	106	...	...	...	3	7
	Colored males	24	...	...	...	3	5
	Colored females	5	...	...	...	1	...
158	Suicide by drowning	316	...	...	1	20	24
	White males	176	...	...	...	4	9
	White females	109	...	...	...	14	7
	Colored males	16	...	...	...	1	4
	Colored females	15	...	...	1	1	4
159	Suicide by firearms	1519	...	...	8	81	225
	White males	1210	...	...	6	50	159
	White females	152	...	...	...	23	38
	Colored males	129	...	...	1	6	24
	Colored females	28	...	...	1	2	4

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* Includes war deaths (1,149).

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.
Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
4245	3813	3460	3189	2983	2968	2722	2574	2177	1692	1073	155 to 186
2598	2303	2183	2106	2004	1969	1811	1600	1210	797	401	
622	615	521	524	544	628	634	742	774	780	605	
784	676	600	432	329	281	205	154	108	54	26	
241	219	156	127	106	90	72	78	85	61	41	
724	711	666	640	598	620	527	431	304	152	71	155 to 163
421	401	425	429	433	466	413	347	254	118	61	
218	235	170	173	139	128	97	72	44	33	10	
52	48	48	26	19	20	14	12	6	...	...	
33	27	23	12	7	6	3	...	...	1	...	
337	314	227	240	157	178	135	113	68	30	8	155
159	157	134	147	98	126	98	86	59	19	6	
142	115	67	76	54	43	34	26	9	11	2	
16	22	12	12	4	6	2	1	...	...	...	
20	20	14	5	1	3	1	...	...	...	...	
87	103	122	122	115	129	113	77	57	33	7	156
50	50	59	66	71	85	82	57	45	22	4	
33	51	60	54	43	43	29	17	11	11	3	
3	1	2	1	1	...	2	3	1	...	...	
1	1	1	1	...	1	...	...	...	...	...	
40	51	58	58	74	86	91	97	76	35	23	157
34	36	51	44	60	73	71	85	67	32	20	
4	13	2	14	13	10	15	10	9	3	3	
1	2	3	...	...	3	5	2	...	...	...	
1	...	2	...	1	...	...	...	...	...	...	
31	33	29	25	30	37	20	31	22	8	5	158
20	14	14	15	18	23	13	23	13	5	5	
7	17	11	7	8	14	6	7	9	2	...	
2	1	2	3	2	...	...	1	...	...	...	
2	1	2	...	2	...	1	...	...	1	...	
175	156	162	132	152	130	122	80	52	29	15	159
128	109	122	111	134	113	113	73	49	28	15	
14	25	13	14	9	7	5	2	1	1	...	
26	18	24	4	8	8	3	5	2	...	...	
7	4	3	3	1	2	1	...	...	...	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
160	Suicide by cutting or piercing instruments.....	346	...	...	...	3	15
	White males................	272	...	...	...	1	11
	White females..............	47	...	...	...	1	3
	Colored males..............	24	...	...	...	1	1
	Colored females............	3	...	...	...	...	...
161	Suicide by jumping from high places............	107	...	...	...	5	4
	White males................	58	...	...	...	3	2
	White females..............	38	...	...	...	2	1
	Colored males..............	7	...	...	...	...	1
	Colored females............	4	...	...	...	...	...
162	Suicide by crushing.......	33	...	...	...	3	6
	White males................	25	...	...	...	2	4
	White females..............	5	...	...	...	...	1
	Colored males..............	3	...	...	...	1	1
	Colored females............	...	...	...	...	...	...
163	Other suicides............	68	...	...	1	4	6
	White males................	29	...	...	...	2	2
	White females..............	31	...	...	1	1	1
	Colored males..............	2	...	...	...	...	...
	Colored females............	6	...	...	...	1	3
	Accidents or undefined violence (total)*............	39268	4228	3740	2720	3241	3027
	White males................	24794	2149	2323	1963	2308	2170
	White females..............	9356	1644	1048	420	459	427
	Colored males..............	3705	236	209	264	412	333
	Colored females............	1413	199	160	73	62	97
164	Poisoning by food.........	622	183	87	38	24	28
	White males................	265	94	42	18	8	11
	White females..............	248	73	36	14	12	10
	Colored males..............	45	7	4	3	1	5
	Colored females............	64	9	5	3	3	2
165	Other acute poisonings.....	1144	357	61	16	49	91
	White males................	515	162	34	9	14	30
	White females..............	475	147	16	5	32	44
	Colored males..............	82	30	7	...	1	6
	Colored females............	72	18	4	2	2	11

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* Includes titles 164 to 181 inclusive, 185 and 186, but excludes "war

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
25	28	42	46	53	44	30	21	20	10	9	160
18	22	35	37	42	35	23	17	14	9	8	
4	3	4	4	6	7	5	4	4	1	1	
3	3	3	4	3	2	2	...	2	...	...	
..	...	...	1	2	...	...	...	...	...	...	
16	13	18	11	9	9	5	5	7	4	1	161
7	9	6	6	6	7	3	2	5	1	1	
7	4	9	2	2	2	2	3	1	3	...	
1	...	2	1	1	...	...	...	1	...	...	
1	...	1	2	...	...	...	...	...	...	...	
3	2	3	1	2	3	5	2	2	...	1	162
2	2	2	...	1	2	5	2	2	...	1	
1	...	1	...	1	1	...	...	...	...	...	
...	...	...	1	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
10	11	5	5	6	4	6	5	...	3	2	163
3	2	2	3	3	2	5	2	...	2	1	
6	7	3	2	3	1	1	3	...	1	1	
...	1	...	...	...	1	...	...	...	...	...	
1	1	...	...	...	...	...	...	...	...	...	
2574	2327	2274	2195	2175	2203	2105	2089	1843	1532	995	
1787	1582	1546	1522	1482	1434	1347	1226	940	675	340	
324	317	304	307	383	475	527	659	726	743	593	
369	339	340	284	227	220	169	132	94	54	23	
94	89	84	82	83	74	62	72	83	60	39	
25	37	23	33	26	30	27	21	20	12	8	164
10	12	7	13	10	10	9	10	6	4	1	
9	15	8	8	10	9	11	8	13	5	7	
2	3	3	4	2	6	4	...	...	1	...	
4	7	5	8	4	5	3	3	1	2	...	
104	86	67	66	60	47	43	41	24	23	9	165
38	33	19	31	35	29	21	29	11	15	5	
49	41	38	21	19	12	19	10	12	6	4	
11	4	6	7	2	3	3	...	...	2	...	
6	8	4	7	4	3	...	2	1	...	...	

deaths'' (x-186).

Number of Deaths from Each Specified Disease or
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
166	Conflagration	576	101	64	30	24	34
	White males	257	45	28	7	10	11
	White females	185	30	24	15	11	13
	Colored males	62	12	1	5	3	6
	Colored females	72	14	11	3	...	4
167	Burns (conflagration excepted)	4714	1977	760	174	130	162
	White males	1545	912	227	35	29	38
	White females	2393	828	410	108	73	86
	Colored males	255	116	29	8	8	9
	Colored females	521	121	94	23	20	29
168	Absorption of deleterious gases (conflagration excepted)	1431	46	48	53	68	97
	White males	843	21	24	36	31	59
	White females	485	21	23	13	32	28
	Colored males	69	2	...	2	3	5
	Colored females	34	2	1	2	2	5
169	Accidental drowning	5757	280	742	915	1031	694
	White males	4310	194	627	717	737	479
	White females	661	74	77	79	128	113
	Colored males	708	9	33	110	157	92
	Colored females	78	3	5	9	9	10
170	Traumatism by firearms	1029	39	100	209	244	136
	White males	637	19	63	162	161	77
	White females	89	11	14	9	23	4
	Colored males	248	4	18	33	58	41
	Colored females	55	5	5	5	2	14
171	Traumatism by cutting or piercing instruments	93	9	10	10	5	9
	White males	51	3	8	8	2	4
	White females	15	6	1	2	1	1
	Colored males	21	...	1	...	2	4
	Colored females	6	...	...	...	...	...
172	Traumatism by fall	6917	454	311	201	208	241
	White males	4021	249	204	145	158	191
	White females	2297	159	78	32	27	24
	Colored males	405	31	23	16	17	17
	Colored females	194	15	6	8	6	9

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
25	35	42	33	34	31	31	27	28	24	13	166
12	18	27	20	19	18	15	6	9	10	2	
8	5	9	8	7	6	10	11	9	10	9	
3	5	3	2	7	4	2	5	3	1	...	
2	7	3	3	1	3	4	5	7	3	2	
145	123	133	135	140	170	146	159	149	124	87	167
28	29	36	28	33	36	32	29	17	24	12	
84	66	65	79	81	99	88	96	93	78	59	
9	11	10	13	6	6	4	9	9	5	3	
24	17	22	15	20	29	22	25	30	17	13	
94	100	97	113	123	127	132	127	96	68	42	168
47	57	55	81	77	74	83	80	58	40	20	
34	27	30	22	34	44	46	46	35	28	22	
8	9	10	8	9	8	2	1	2	...	...	
5	7	2	2	3	1	1	...	1	...	...	
432	328	259	241	232	197	156	109	82	40	19	169
299	224	184	188	167	154	134	88	68	34	16	
42	28	20	17	27	20	11	10	9	3	3	
84	71	47	31	30	20	8	9	4	3	...	
7	5	8	5	8	3	3	2	1	...	...	
82	69	58	34	10	17	7	13	7	4	...	170
38	35	27	17	5	13	5	8	6	1	...	
3	3	8	2	3	2	...	4	1	2	...	
34	28	17	9	...	2	2	1	...	1	...	
7	3	6	6	2	...	...	...	...	...	...	
12	7	6	6	4	5	4	4	1	...	1	171
4	5	2	3	2	2	3	4	...	...	1	
1	...	1	...	...	...	1	...	1	...	...	
7	...	2	2	...	3	...	...	...	...	...	
...	2	1	1	2	...	...	...	...	...	...	
267	341	410	419	457	504	549	653	687	707	508	172
199	257	304	318	313	324	330	338	289	255	147	
30	49	52	58	98	136	169	271	356	414	344	
26	28	46	35	35	33	35	27	22	9	5	
12	7	8	8	11	11	15	17	20	29	12	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR

Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
A173	Traumatism in mines......	612	...	1	15	100	79
	White males................	505	...	...	9	89	70
	White females.............	3	...	1	1	...	...
	Colored males.............	104	...	...	5	11	9
	Colored females............	...	...	...	...	...	...
B173	Traumatism in quarries....	48	...	...	1	8	2
	White males................	40	...	...	1	8	2
	White females.............	1	...	...	...	...	...
	Colored males.............	7	...	...	...	...	...
	Colored females............	...	...	...	...	...	...
174	Traumatism by machines..	905	7	10	30	140	113
	White males................	720	4	7	26	112	97
	White females.............	32	2	2	1	9	2
	Colored males.............	148	1	1	2	16	14
	Colored females............	5	...	...	1	3	...
A175	Railroad accidents and injuries...............	4485	48	171	228	508	644
	White males................	3598	32	132	185	409	546
	White females.............	301	15	27	19	32	18
	Colored males.............	527	1	11	22	62	76
	Colored females............	59	...	1	2	5	4
B175	Street-car accidents and injuries...............	1600	120	186	104	96	75
	White males................	1130	63	120	78	66	58
	White females.............	312	51	52	17	14	10
	Colored males.............	124	3	10	6	14	6
	Colored females............	34	3	4	3	2	1
C175	Automobile accidents and injuries...............	2507	165	625	335	177	176
	White males................	1737	96	423	257	132	129
	White females.............	585	61	160	53	33	38
	Colored males.............	139	6	32	20	11	6
	Colored females............	46	2	10	5	1	3
D175	Injuries by other vehicles..	1658	170	273	107	112	110
	White males................	1226	97	202	83	82	88
	White females.............	242	66	50	14	13	14
	Colored males.............	170	4	17	9	14	8
	Colored females............	20	3	4	1	3	...

Condition. Classified by Color, Sex and by Age Period.
Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
80	61	58	50	48	45	37	21	14	3	...	A173
69	48	39	39	40	38	30	19	12	3	...	
...	...	...	...	...	...	...	...	1	...	...	
11	13	19	11	8	7	7	2	1	...	...	
...	...	...	...	...	...	...	...	...	...	...	
3	6	6	3	5	6	3	2	2	1	...	B173
2	6	4	3	3	5	3	2	1	...	...	
...	...	1	...	...	...	...	...	...	...	...	
1	...	1	...	2	1	...	...	1	1	...	
...	...	...	...	...	...	...	...	...	...	...	
69	93	93	73	82	67	59	34	24	7	4	174
49	68	69	64	69	46	50	30	21	7	1	
1	3	2	...	...	4	1	1	2	...	2	
19	21	22	9	13	17	8	3	1	...	1	
...	1	...	...	...	...	...	...	...	...	...	
557	396	344	323	261	258	228	250	149	83	37	A175
471	312	279	251	210	195	181	187	117	67	24	
13	17	9	14	13	28	20	39	17	13	7	
67	60	50	49	33	33	25	21	11	3	3	
6	7	6	9	5	2	2	3	4	...	3	
101	74	101	93	105	121	130	110	85	53	46	B175
84	61	77	72	74	92	92	68	60	36	29	
4	3	9	8	15	20	29	33	21	11	15	
13	8	12	11	10	6	8	7	3	5	2	
...	2	3	2	6	3	1	2	1	1	...	
153	101	97	103	108	94	109	115	79	49	21	C175
114	73	65	66	76	60	67	80	52	35	12	
23	19	22	27	26	23	31	28	19	14	8	
13	5	9	9	3	7	9	4	4	...	1	
3	4	1	1	3	4	2	3	4	...	...	
89	114	101	98	107	103	75	78	63	47	11	D175
79	87	80	74	75	76	60	59	46	29	9	
3	9	4	7	14	10	6	8	10	13	1	
7	17	15	15	16	17	9	11	6	4	1	
...	1	2	2	2	...	...	...	1	1	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR

Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
E175	Landslide, other crushing	381	16	27	23	36	33
	White males	299	11	21	21	28	30
	White females	20	5	5	1	4	...
	Colored males	58	...	1	...	4	3
	Colored females	4	...	...	1	...	...
176	Injuries by animals	233	12	27	22	15	15
	White males	188	9	22	16	12	11
	White females	10	3	2	...	2	...
	Colored males	35	...	3	6	1	4
	Colored females	...	...	...	...	...	...
177	Starvation	16	...	...	...	1	...
	White males	7	...	...	...	1	...
	White females	6	...	...	...	...	...
	Colored males	2	...	...	...	...	...
	Colored females	1	...	...	...	...	...
178	Excessive cold	217	2	3	3	8	11
	White males	128	2	3	1	6	5
	White females	27	...	...	1	...	3
	Colored males	45	...	...	...	1	2
	Colored females	17	...	...	1	1	1
179	Effects of heat	1247	50	21	15	17	30
	White males	720	29	12	9	12	20
	White females	336	16	7	3	3	5
	Colored males	132	1	1	1	2	4
	Colored females	59	4	1	2	...	1
180	Lightning	96	...	6	14	14	11
	White males	71	...	5	10	13	8
	White females	11	...	1	2	1	1
	Colored males	14	...	...	2	...	2
	Colored females	...	...	...	...	...	...
181	Electricity (lightning excepted)	452	4	20	34	68	93
	White males	421	3	16	31	64	92
	White females	8	...	1	2	2	...
	Colored males	20	1	2	1	2	1
	Colored females	3	...	1	...	...	...

Condition. Classified by Color, Sex and by Age Period.
Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
39	38	29	33	30	35	19	13	6	2	2	E175
27	29	20	23	23	31	15	12	4	2	2	
1	...	1	2	...	...	...	...	1	...	...	
9	9	7	8	7	4	4	1	1	...	...	
2	...	1	...	...	...	...	...	...	...	...	
11	15	19	20	16	14	13	10	16	6	2	176
7	14	16	15	14	12	11	8	14	5	2	
1	...	1	...	...	...	...	...	...	1	...	
3	1	2	5	2	2	2	2	2	...	...	
...	...	...	...	...	...	...	...	...	...	...	
3	...	1	...	...	3	3	2	1	2	...	177
1	...	...	...	...	1	1	2	...	1	...	
1	...	...	...	...	2	1	...	1	1	...	
1	...	...	...	...	...	1	...	...	...	...	
...	...	1	...	...	...	...	...	...	...	...	
13	22	14	16	20	23	22	24	18	13	5	178
5	15	9	6	15	12	16	18	9	5	1	
2	2	...	4	1	2	2	1	4	2	3	
3	3	5	5	3	8	4	4	3	4	...	
3	2	...	1	1	1	...	1	2	2	1	
41	70	122	104	120	128	130	107	125	101	66	179
25	44	81	71	82	82	68	54	69	36	26	
3	14	13	18	17	27	40	39	43	56	32	
10	8	21	10	14	14	15	10	10	7	4	
3	4	7	5	7	5	7	4	3	2	4	
13	8	5	5	6	4	5	1	2	1	1	180
10	6	3	3	4	3	3	1	1	...	1	
2	...	...	...	1	...	1	...	1	1	...	
1	2	2	2	1	1	1	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
65	49	45	33	14	12	11	3	...	...	1	181
63	46	41	30	12	11	8	3	...	...	1	
1	...	...	...	1	...	1	...	...	...	...	
1	2	4	2	1	1	2	...	...	...	...	
...	1	...	1	...	...	...	...	...	...	...	

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods.					
		All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
185	Fractures (cause not specified)	806	12	27	20	14	20
	White males	414	8	16	15	12	16
	White females	316	4	9	3	...	1
	Colored males	57	...	...	2	2	3
	Colored females	19	...	2	...	...	...
186	Other external violence	1722	176	160	123	144	123
	White males	1146	96	87	84	112	98
	White females	298	72	52	26	7	12
	Colored males	228	8	15	11	22	10
	Colored females	50	...	6	2	3	3
(x–186)	War deaths*	1149	3	3	2	156	431
	White males	1130	1	2	2	155	429
	White females	14	2	1	...	...	1
	Colored males	5	...	...	...	1	1
	Colored females	...	...	...	...	...	...
182 to 184	Homicide (total)	3753	28	45	60	352	682
	White males	1148	10	19	24	119	184
	White females	500	16	15	16	58	93
	Colored males	1592	2	7	15	127	291
	Colored females	513	...	4	5	48	114
182	Homicide by firearms	2435	8	16	37	238	459
	White males	691	3	9	15	83	125
	White females	292	4	4	7	42	52
	Colored males	1132	1	2	12	92	207
	Colored females	320	...	1	3	21	75
183	Homicide by cutting or piercing instruments	616	5	5	7	60	125
	White males	167	2	1	3	20	33
	White females	43	3	2	1	3	4
	Colored males	297	...	...	2	22	62
	Colored females	109	...	2	1	15	26
184	Homicide by other means	702	15	24	16	54	98
	White males	290	5	9	6	16	26
	White females	165	9	9	8	13	37
	Colored males	163	1	5	1	13	22
	Colored females	84	...	1	1	12	13

* Includes the two years 1915 and 1916 only.

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
36	36	47	57	50	54	58	91	90	118	76	185
28	25	36	39	38	35	31	41	24	37	13	
...	5	6	6	8	14	23	42	60	75	60	
6	6	5	11	3	3	3	5	2	5	1	
2	...	...	1	1	2	1	3	4	1	2	
115	118	97	104	117	108	108	74	75	44	36	186
78	78	66	67	86	75	79	50	46	29	15	
9	11	5	6	8	17	17	12	17	10	17	
20	25	22	26	20	14	11	10	9	3	2	
8	4	4	5	3	2	1	2	3	2	2	
200	170	100	62	14	5	1	1	1	...	...	(x-186)
194	168	99	60	14	3	1	1	1	...	...	
5	2	1	1	...	1	...	...	...	...	...	
1	...	...	1	...	1	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
747	605	420	292	196	140	89	53	29	8	7	182 to 184
196	152	113	95	75	66	50	26	15	4	...	
75	61	46	43	22	24	10	11	4	4	2	
362	289	212	121	83	40	22	10	8	...	3	
114	103	49	33	16	10	7	6	2	...	2	
539	405	277	190	114	69	45	21	10	3	4	182
135	100	64	58	34	26	25	10	3	1	...	
49	34	27	28	16	15	3	6	2	2	1	
272	204	160	83	55	22	13	2	5	...	2	
83	67	26	21	9	6	4	3	...	...	1	
121	98	67	52	29	16	17	8	3	2	1	183
36	17	21	10	7	6	8	...	2	1	...	
2	6	5	7	3	2	4	...	...	1	...	
65	56	29	28	15	7	4	5	1	...	1	
18	19	12	7	4	1	1	3	...	...	...	
87	102	76	50	53	55	27	24	16	3	2	184
25	35	28	27	34	34	17	16	10	2	...	
24	21	14	8	3	7	3	5	2	1	1	
25	29	23	10	13	11	5	3	2	...	...	
13	17	11	5	3	3	2	...	2	...	1	

† Does not include war deaths (1,149).

NUMBER OF DEATHS FROM EACH SPECIFIED DISEASE OR
Metropolitan Life Insurance Company Industrial

Int'l List Number.	Cause of Death.	Age Periods. All ages—1 yr. and over.	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.
187 to 189	XIV. ILL-DEFINED DISEASES	5448	404	90	71	109	215
	White males	2591	173	35	30	40	72
	White females	1504	132	31	23	35	60
	Colored males	731	59	11	12	17	40
	Colored females	622	40	13	6	17	43
187	Ill-defined organic disease	261	5	4	5	6	6
	White males	46	1	1	2	...	...
	White females	69	2	...	2	4	...
	Colored males	64	2	1	1	1	2
	Colored females	82	...	2	...	1	4
188	Sudden death	131	1	...	2	2	3
	White males	59	1	...	...	2	...
	White females	54	...	...	2	...	2
	Colored males	7	...	...	...	...	...
	Colored females	11	...	...	...	...	1
189	Not specified or ill-defined	5056	398	86	64	101	206
	White males	2486	171	34	28	38	72
	White females	1381	130	31	19	31	58
	Colored males	660	57	10	11	16	38
	Colored females	529	40	11	6	16	38

CONDITION. CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

Mortality Experience, 1911 to 1916.

Age Periods.											Int'l List Number.
25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 64.	65 to 69.	70 to 74.	75 and over.	
307	406	483	450	465	466	493	538	470	323	158	187 to 189
151	210	264	242	263	238	237	239	200	130	67	
72	65	88	100	105	106	131	175	191	128	62	
52	86	64	63	56	69	55	62	39	31	15	
32	45	67	45	41	53	70	62	40	34	14	
3	9	16	15	20	26	35	44	26	27	14	187
...	1	4	2	3	2	8	7	7	5	3	
1	...	3	4	6	8	7	11	9	7	5	
...	3	2	3	6	9	9	8	7	8	2	
2	5	7	6	5	7	11	18	3	7	4	
4	3	8	5	14	15	22	17	20	13	2	188
2	1	...	2	7	7	11	6	9	9	2	
2	1	4	1	6	6	9	10	7	4	...	
...	...	2	2	1	...	...	...	2	...	...	
...	1	2	...	...	2	2	1	2	...	...	
300	394	459	430	431	425	436	477	424	283	142	189
149	208	260	238	253	229	218	226	184	116	62	
69	64	81	95	93	92	115	154	175	117	57	
52	83	60	58	49	60	46	54	30	23	13	
30	39	58	39	36	44	57	43	35	27	10	

APPENDIX B.

TABLE 177.

Number of Deaths and Death Rates per 100,000 Exposed, for the Six-Year Period 1911 to 1916 and for Each Year of the Period. Classified According to the Detailed International List of Causes of Death.

Experience of the Metropolitan Life Insurance Company, Industrial Department.

Int. List No.	Cause of Death.	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
1 to 189	ALL CAUSES OF DEATH —TOTAL	635449	118880	109311	106601	104307	98735	97615	1181.2	1168.1	1130.9	1152.8	1199.4	1201.2	1253.0
1 to 59	General Diseases	225112	40971	38498	38395	37158	34943	35147	418.5	402.6	398.3	415.2	427.3	425.1	451.2
1	Typhoid fever	9011	1320	1251	1487	1604	1571	1778	16.8	13.0	12.9	16.1	18.4	19.1	22.8
2	Typhus fever	1	——	1	——	——	——	——	†	——	†	——	——	——	——
3	Relapsing fever	8	——	——	1	2	1	4	†	——	——	†	†	†	.1
4	Malaria	2295	298	336	346	390	447	478	4.3	2.9	3.5	3.7	4.5	5.4	6.1
5	Smallpox	103	4	20	19	21	21	18	.2	——	.2	.2	.2	.3	.2
6	Measles	4776	1005	555	639	1068	624	885	8.9	9.9	5.7	6.9	12.3	7.6	11.4
7	Scarlet fever	4638	413	447	909	1105	742	1022	8.6	4.1	4.6	9.8	12.7	9.0	13.1
8	Whooping cough	3075	591	459	539	513	417	556	5.7	5.8	4.7	5.8	5.9	5.1	7.1
9	Diphtheria and croup	13089	2136	2072	2379	2364	2012	2126	24.3	21.0	21.4	25.7	27.2	24.5	27.3
10	Influenza	8056	2425	1261	1049	1072	1010	1239	15.0	23.8	13.0	11.3	12.3	12.3	15.9
11	Miliary fever	1	——	——	1	——	——	——	†	——	——	†	——	——	——
12	Asiatic cholera	5	1	1	——	1	——	2	†	†	†	——	†	——	†
13	Cholera nostras	190	23	24	28	35	34	46	.4	.2	.2	.3	.4	.4	.6
14	Dysentery	2029	314	332	331	311	366	375	3.8	3.1	3.4	3.6	3.6	4.5	4.8
15	Plague	1	——	——	1	——	——	——	†	——	——	†	——	——	——
16	Yellow fever	1	——	——	——	——	——	1	†	——	——	——	——	——	†
17	Leprosy	11	3	3	2	2	1	——	†	†	†	†	†	†	——
18	Erysipelas	1289	263	199	249	213	180	185	2.4	2.6	2.1	2.7	2.4	2.2	2.4
19	Other epidemic diseases	184	24	31	38	37	25	29	.3	.2	.3	.4	.4	.3	.4

† Less than .05 per 100,000 exposed.

Int. List No.	Cause of Death.	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
20	Purulent infection and septicemia	1083	193	165	166	192	170	197	2.0	1.9	1.7	1.8	2.2	2.1	2.5
21	Glanders	6	—	1	—	1	2	2	†	—	†	—	†	†	†
22	Anthrax	27	6	7	2	6	4	2	.1	†	.1	†	.1	†	†
23	Rabies	84	7	7	20	21	9	20	.2	†	.1	.2	.2	.1	.3
24	Tetanus	890	138	124	173	157	158	140	1.7	1.4	1.3	1.9	1.8	1.9	1.8
25	Mycoses	14	3	—	3	2	2	4	†	†	—	†	†	†	.1
26	Pellagra	2310	368	650	492	290	233	277	4.3	3.6	6.7	5.3	3.3	2.8	3.6
27	Beriberi	4	—	2	—	—	1	1	†	—	†	—	—	†	†
	Tuberculosis, all forms	110363	19356	19122	18913	17979	17496	17497	205.1	190.2	197.8	204.5	206.7	212.9	224.6
28	Tuberculosis of the lungs	93526	16558	16360	16092	15169	14683	14664	173.9	162.7	169.3	174.0	174.4	178.6	188.2
29	Acute miliary tuberculosis	6380	1032	1034	1039	1062	1063	1150	11.9	10.1	10.7	11.2	12.2	12.9	14.8
30	Tuberculous meningitis	4647	833	790	802	773	758	691	8.6	8.2	8.2	8.7	8.9	9.2	8.9
31	Abdominal tuberculosis	3155	515	507	510	538	544	541	5.9	5.1	5.2	5.5	6.2	6.6	6.9
32	Pott's disease	866	137	164	165	149	133	118	1.6	1.3	1.7	1.8	1.7	1.6	1.5
33	White swellings	573	80	85	121	91	98	98	1.1	.8	.9	1.3	1.0	1.2	1.3
34	Tuberculosis of other organs	959	175	154	157	170	144	159	1.8	1.7	1.6	1.7	2.0	1.8	2.0
35	Disseminated tuberculosis	257	26	28	27	27	73	76	.5	.3	.3	.3	.3	.9	1.0
36	Rickets	174	30	41	19	29	32	23	.3	.3	.4	.2	.3	.4	.3
37	Syphilis	4659	1209	1101	903	520	662	264	8.7	11.9	11.4	9.8	6.0	8.1	3.4
38	Gonococcus infection	200	51	34	37	28	34	16	.4	.5	.4	.4	.3	.4	.2
	Cancer and other malignant tumors—total	37666	7150	6856	6454	6130	5777	5299	70.0	70.3	70.9	69.8	70.5	70.3	68.0
39	Of buccal cavity	1353	248	225	227	247	223	183	2.5	2.4	2.3	2.5	2.8	2.7	2.3
40	Of stomach, liver	14153	2721	2500	2428	2264	2237	2003	26.3	26.7	25.9	26.3	26.0	27.2	25.7
41	Of peritoneum, intestines, rectum	4482	876	837	777	711	646	635	8.3	8.6	8.7	8.4	8.2	7.9	8.2
42	Of female genital organs	7882	1428	1453	1373	1357	1227	1044	14.7	14.0	15.0	14.8	15.6	14.9	13.4
43	Of breast	3579	685	699	590	589	563	453	6.7	6.7	7.2	6.4	6.8	6.8	5.8

† Less than .05 per 100,000 exposed.

TABLE 177 (*Continued*).

NUMBER OF DEATHS AND DEATH RATES PER 100,000 EXPOSED, FOR THE SIX-YEAR PERIOD 1911 TO 1916 AND FOR EACH YEAR OF THE PERIOD. CLASSIFIED ACCORDING TO THE DETAILED INTERNATIONAL LIST OF CAUSES OF DEATH.

Experience of the Metropolitan Life Insurance Company, Industrial Department.

Int. List No.	Cause of Death.	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
44	Of skin	938	168	166	175	166	136	127	1.7	1.7	1.7	1.9	1.9	1.7	1.6
45	Of other organs or of organs not specified	5279	1024	976	884	796	745	854	9.8	10.1	10.1	9.6	9.2	9.1	11.0
46	Other tumors (tumors of female genital organs excepted)	293	52	45	39	44	46	67	.5	.5	.5	.4	.5	.6	.9
47	Acute articular rheumatism	3409	515	579	577	567	568	603	6.3	5.1	6.0	6.2	6.5	6.9	7.7
48	Chronic rheumatism and gout	598	98	92	95	113	107	93	1.1	1.0	1.0	1.0	1.3	1.3	1.2
49	Scurvy	21	3	7	5	2	4	—	†	†	.1	.1	†	†	—
50	Diabetes	7762	1620	1458	1315	1207	1127	1035	14.4	15.9	15.1	14.2	13.9	13.7	13.3
51	Exophthalmic goiter	743	163	147	112	117	106	98	1.4	1.6	1.5	1.2	1.3	1.3	1.3
52	Addison's disease	164	25	34	28	30	26	21	.3	.2	.4	.3	.3	.3	.3
53	Leukemia	762	142	141	147	123	105	104	1.4	1.4	1.5	1.6	1.4	1.3	1.3
54	Anemia, chlorosis	1772	346	341	307	274	273	231	3.3	3.4	3.5	3.3	3.2	3.3	3.0
55	Other general diseases	426	98	75	72	70	52	59	.8	1.0	.8	.8	.8	.6	.8
56	Alcoholism (acute or chronic)	2555	524	401	431	452	436	311	4.7	5.1	4.1	4.7	5.2	5.3	4.0
57	Chronic lead poisoning	191	33	30	39	35	37	17	.4	.3	.3	.4	.4	.5	.2
58	Other chronic occupation poisonings	9	—	2	3	—	2	2	†	—	†	†	—	†	†
59	Other chronic poisonings	164	21	44	25	31	23	20	.3	.2	.5	.3	.4	.3	.3
60 to 76	DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE	57606	11087	9676	9376	9439	9102	8926	107.1	108.9	100.1	101.4	108.5	110.7	114.6
60	Encephalitis	519	81	85	74	93	96	90	1.0	.8	.9	.8	1.1	1.2	1.2

† Less than .05 per 100,000 exposed.

Int. List No.	Cause of Death.	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
61	Meningitis	4171	553	548	593	719	809	949	7.8	5.4	5.7	6.4	8.3	9.8	12.2
62	Locomotor ataxia	797	113	126	125	163	119	151	1.5	1.1	1.3	1.4	1.9	1.4	1.9
A63	Acute anterior poliomyelitis	1889	1245	113	110	146	152	123	3.5	12.2	1.2	1.2	1.7	1.8	1.6
B63	Other diseases of spinal cord*	2160	351	420	370	360	351	308	4.0	3.4	4.3	4.0	4.1	4.3	4.0
64	Cerebral hemorrhage, apoplexy	36638	6993	6621	6401	5847	5776	5000	68.1	68.7	68.5	69.2	67.2	70.3	64.2
65	Softening of the brain	488	69	71	77	78	97	96	.9	.7	.7	.8	.9	1.2	1.2
66	Paralysis without specified cause	2773	331	354	333	474	471	810	5.2	3.3	3.7	3.6	5.5	5.7	10.4
67	General paralysis of the insane	2224	275	322	325	510	348	444	4.1	2.7	3.3	3.5	5.9	4.2	5.7
68	Other forms of mental alienation	757	130	123	154	122	115	113	1.4	1.3	1.3	1.7	1.4	1.4	1.5
69	Epilepsy	1869	345	325	296	346	283	274	3.5	3.4	3.4	3.2	4.0	3.4	3.5
70	Convulsions (nonpuerperal)	98	16	15	15	12	18	22	.2	.2	.2	.2	.1	.2	.3
71	Convulsions of infants	461	66	77	53	82	76	107	.9	.6	.8	.6	.9	.9	1.4
72	Chorea	98	18	15	17	19	14	15	.2	.2	.2	.2	.2	.2	.2
73	Neuralgia and neuritis	310	50	47	42	68	48	55	.6	.5	.5	.5	.8	.6	.7
74	Other diseases of nervous system	1349	257	224	202	232	213	221	2.5	2.5	2.3	2.2	2.7	2.6	2.8
75	Diseases of eyes and their annexa	43	6	8	10	6	6	7	.1	.1	.1	.1	.1	.1	.1
76	Diseases of the ears	962	188	182	179	162	110	141	1.8	1.8	1.9	1.9	1.9	1.3	1.8
77 to 85	DISEASES OF THE CIRCULATORY SYSTEM	94415	17723	16437	16248	15413	14790	13804	175.5	174.1	170.1	175.7	177.2	179.9	177.2
77	Pericarditis	624	103	94	97	117	105	108	1.2	1.0	1.0	1.0	1.3	1.3	1.4
78	Acute endocarditis	5080	977	937	926	748	770	722	9.4	9.6	9.7	10.0	8.6	9.4	9.3
79	Organic diseases of the heart	75345	14264	13216	12770	12224	11821	11050	140.1	140.2	136.7	138.1	140.6	143.8	141.8
80	Angina pectoris	2218	389	412	378	381	357	301	4.1	3.8	4.3	4.1	4.4	4.3	3.9

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* Acute anterior poliomyelitis excepted.

TABLE 177 (*Continued*).

NUMBER OF DEATHS AND DEATH RATES PER 100,000 EXPOSED, FOR THE SIX-YEAR PERIOD 1911 TO 1916 AND FOR EACH YEAR OF THE PERIOD. CLASSIFIED ACCORDING TO THE DETAILED INTERNATIONAL LIST OF CAUSES OF DEATH.

Experience of the Metropolitan Life Insurance Company, Industrial Department.

Int. List No.	Cause of Death.	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
81	Diseases of arteries*	9142	1547	1396	1749	1648	1449	1353	17.0	15.2	14.4	18.9	19.0	17.6	17.4
82	Embolism and thrombosis	1192	279	230	205	150	163	165	2.2	2.7	2.4	2.2	1.7	2.0	2.1
83	Diseases of veins‡	455	98	85	73	75	61	63	.8	1.0	.9	.8	.9	.7	.8
84	Diseases of lymphatic system	165	34	31	22	29	32	17	.3	.3	.3	.2	.3	.4	.2
85	Hemorrhage; other diseases of circulatory system	194	32	36	28	41	32	25	.4	.3	.4	.3	.5	.4	.3
86 to 98	DISEASES OF THE RESPIRATORY SYSTEM	71345	13945	12479	11484	11448	10743	11246	132.6	137.0	129.1	124.2	131.6	130.7	144.4
86	Diseases of nasal fossae	72	10	9	15	18	9	11	.1	.1	.1	.2	.2	.1	.1
87	Diseases of larynx	594	89	104	111	94	89	107	1.1	.9	1.1	1.2	1.1	1.1	1.4
88	Diseases of thyroid body	188	35	46	29	40	22	16	.3	.3	.5	.3	.5	.3	.2
89	Acute bronchitis	2636	506	439	445	431	402	413	4.9	5.0	4.5	4.8	5.0	4.9	5.3
90	Chronic bronchitis	4224	685	671	658	706	732	772	7.9	6.7	6.9	7.1	8.1	8.9	9.9
91	Bronchopneumonia	16224	3413	3102	2900	2470	2307	2032	30.2	33.5	32.1	31.4	28.4	28.1	26.1
92	Pneumonia (lobar and undefined)	41707	8224	7189	6367	6753	6228	6946	77.5	80.8	74.4	68.9	77.7	75.8	89.2
93	Pleurisy	1985	409	342	349	299	294	292	3.7	4.0	3.5	3.8	3.4	3.6	3.7
94	Pulmonary congestion, pulmonary apoplexy	939	145	130	158	158	158	190	1.7	1.4	1.3	1.7	1.8	1.9	2.4
95	Gangrene of lung	171	31	27	25	28	26	34	.3	.3	.3	.3	.3	.3	.4
96	Asthma	1594	255	247	260	279	274	279	3.0	2.5	2.6	2.8	3.2	3.3	3.6
97	Pulmonary emphysema	123	30	21	20	20	19	13	.2	.3	.2	.2	.2	.2	.2

* Includes atheroma, aneurism, etc.

‡ Includes varices, hemorrhoids, phlebitis.

Int. List No.	Cause of Death.	Number of Deaths,							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
98	Other diseases of respiratory system (tuberculosis excepted)	888	113	152	147	152	183	141	1.7	1.1	1.6	1.6	1.7	2.2	1.8
99 to 118	DISEASES OF THE DIGESTIVE SYSTEM	49146	9056	8306	8176	8250	7766	7592	91.4	89.0	85.9	88.4	94.9	94.5	97.5
99	Diseases of mouth and annexa	200	47	39	34	31	27	22	.4	.5	.4	.4	.4	.3	.3
100	Diseases of pharynx	1153	265	236	193	185	152	122	2.1	2.6	2.4	2.1	2.1	1.8	1.6
101	Diseases of esophagus	124	20	21	16	23	20	24	.2	.2	.2	.2	.3	.2	.3
102	Ulcer of stomach	2159	412	372	380	344	340	311	4.0	4.0	3.8	4.1	4.0	4.1	4.0
103	Other diseases of stomach*	4921	776	752	822	874	839	858	9.1	7.6	7.8	8.9	10.0	10.2	11.0
104	Diarrhea and enteritis (under 2 years)	6684	1277	1092	1103	1148	1052	1012	12.4	12.5	11.3	11.9	13.2	12.8	13.0
105	Diarrhea and enteritis (2 years and over)	7489	1396	1265	1186	1262	1215	1165	13.9	13.7	13.1	12.8	14.5	14.8	15.0
106	Ankylostomiasis	12	1	——	——	4	4	3	†	†	——	——	†	†	†
107	Intestinal parasites	57	4	11	12	11	9	10	.1	†	.1	.1	.1	.1	.1
108	Appendicitis and typhlitis	6345	1249	1139	1114	1045	948	850	11.8	12.3	11.8	12.0	12.0	11.5	10.9
A109	Hernia	2357	436	396	408	398	366	353	4.4	4.3	4.1	4.4	4.6	4.5	4.5
B109	Intestinal obstruction	3162	587	534	556	517	467	501	5.9	5.8	5.5	6.0	5.9	5.7	6.4
110	Other diseases of intestines	1006	218	168	175	156	144	145	1.9	2.1	1.7	1.9	1.8	1.8	1.9
111	Acute yellow atrophy of liver	236	51	32	45	37	36	35	.4	.5	.3	.5	.4	.4	.4
112	Hydatid tumor of liver	11	2	1	3	1	1	3	†	†	†	†	†	†	†
113	Cirrhosis of liver	8064	1388	1358	1282	1394	1369	1273	15.0	13.6	14.0	13.9	16.0	16.7	16.3
114	Biliary calculi	1591	314	303	282	243	222	227	3.0	3.1	3.1	3.0	2.8	2.7	2.9
115	Other diseases of liver	2181	390	379	358	350	330	374	4.1	3.8	3.9	3.9	4.0	4.0	4.8
116	Diseases of spleen	77	17	10	15	13	13	9	.1	.2	.1	.2	.1	.2	.1
117	Simple peritonitis (nonpuerperal)	1013	151	151	140	157	173	241	1.9	1.5	1.6	1.5	1.8	2.1	3.1

* Cancer excepted.

† Less than .05 per 100,000 exposed.

TABLE 177 (*Continued*).

NUMBER OF DEATHS AND DEATH RATES PER 100,000 EXPOSED, FOR THE SIX-YEAR PERIOD 1911 TO 1916 AND FOR EACH YEAR OF THE PERIOD. CLASSIFIED ACCORDING TO THE DETAILED INTERNATIONAL LIST OF CAUSES OF DEATH.

Experience of the Metropolitan Life Insurance Company, Industrial Department.

Int. List No.	Cause of Death.	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
118	Other diseases of digestive system*	304	55	47	52	57	39	54	.6	.5	.5	.6	.7	.5	.7
119 to 133	NONVENEREAL DISEASES OF THE GENITOURINARY SYSTEM AND ANNEXA	64919	12326	11393	10962	10486	10214	9538	120.7	121.1	117.9	118.5	120.6	124.3	122.4
119	Acute nephritis	5120	882	862	789	874	784	929	9.5	8.7	8.9	8.5	10.0	9.5	11.9
120	Bright's disease	52067	10074	9253	8819	8350	8172	7399	96.8	99.0	95.7	95.4	96.0	99.4	95.0
121	Chyluria	3	2	1	—	—	—	—	†	†	†	—	—	—	—
122	Other diseases of kidneys and annexa	861	166	142	141	135	145	132	1.6	1.6	1.5	1.5	1.6	1.8	1.7
123	Calculi of urinary passages	322	53	48	61	53	61	46	.6	.5	.5	.7	.6	.7	.6
124	Diseases of bladder	611	77	98	115	98	120	103	1.1	.8	1.0	1.2	1.1	1.5	1.3
125	Diseases of urethra‡	202	37	29	23	44	32	37	.4	.4	.3	.2	.5	.4	.5
126	Diseases of prostate	1162	218	170	233	169	196	176	2.2	2.1	1.8	2.5	1.9	2.4	2.3
127	Nonvenereal diseases of male genital organs	56	6	14	9	14	8	5	.1	.1	.1	.1	.2	.1	.1
128	Uterine hemorrhage (nonpuerperal)	67	10	12	18	7	10	10	.1	.1	.1	.2	.1	.1	.1
129	Uterine tumor (noncancerous)	1335	265	222	227	196	229	196	2.5	2.6	2.3	2.5	2.3	2.8	2.5
130	Other diseases of uterus	786	127	102	113	166	125	153	1.5	1.2	1.1	1.2	1.9	1.5	2.0
131	Cysts and other tumors of ovary	508	86	91	101	87	68	75	.9	.8	.9	1.1	1.0	.8	1.0

* Cancer and tuberculosis excepted.

† Less than .05 per 100,000 exposed.

‡ Includes urinary abscess, etc.

Int. List No.	Cause of Death.	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
132	Salpingitis and other diseases of female genital organs....	1782	320	339	304	289	256	274	3.3	3.1	3.5	3.3	3.3	3.1	3.5
133	Nonpuerperal diseases of the breast*..................	37	3	10	9	4	8	3	.1	†	.1	.1	†	.1	†
134 to 141	THE PUERPERAL STATE .	10151	1787	1741	1833	1738	1510	1542	18.9	17.6	18.0	19.8	20.0	18.4	19.8
134	Accidents of pregnancy......	885	144	174	159	149	126	133	1.6	1.4	1.8	1.7	1.7	1.5	1.7
135	Puerperal hemorrhage.......	791	138	154	160	110	117	112	1.5	1.4	1.6	1.7	1.3	1.4	1.4
136	Other accidents of labor......	1036	179	161	176	178	163	179	1.9	1.8	1.7	1.9	2.0	2.0	2.3
137	Puerperal septicemia........	4348	737	699	778	793	654	687	8.1	7.2	7.2	8.4	9.1	8.0	8.8
138	Puerperal convulsions........	2675	511	464	475	458	397	370	5.0	5.0	4.8	5.1	5.3	4.8	4.7
139	Puerperal phlegmasia alba dolens, embolus, sudden death...................	369	68	79	79	43	47	53	.7	.7	.8	.9	.5	.6	.7
140	Following childbirth (not otherwise defined).........	43	10	9	5	7	6	6	.1	.1	.1	.1	.1	.1	.1
141	Puerperal diseases of breast...	4	——	1	1	——	——	2	†	——	†	†	——	——	†
142 to 145	DISEASES OF SKIN AND CELLULAR TISSUE.....	1529	240	210	241	282	273	283	2.8	2.4	2.2	2.6	3.2	3.3	3.6
142	Gangrene.................	681	68	75	91	141	131	175	1.3	.7	.8	1.0	1.6	1.6	2.2
143	Furuncle..................	215	52	40	33	35	30	25	.4	.5	.4	.4	.4	.4	.3
144	Acute abscess.............	360	77	58	58	53	70	44	.7	.8	.6	.6	.6	.9	.6
145	Other diseases of skin and annexa.................	273	43	37	59	53	42	39	.5	.4	.4	.6	.6	.5	.5

* Cancer excepted.

† Less than .05 per 100,000 exposed.

TABLE 177 (*Continued*).

NUMBER OF DEATHS AND DEATH RATES PER 100,000 EXPOSED, FOR THE SIX-YEAR PERIOD 1911 TO 1916 AND FOR EACH YEAR OF THE PERIOD. CLASSIFIED ACCORDING TO THE DETAILED INTERNATIONAL LIST OF CAUSES OF DEATH.

Experience of the Metropolitan Life Insurance Company, Industrial Department.

Int. List No.	Cause of Death	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
146 to 149	DISEASES OF BONES AND OF THE ORGANS OF LOCOMOTION	1266	246	246	229	192	191	162	2.4	2.4	2.5	2.5	2.2	2.3	2.1
146	Diseases of bones*	1109	210	214	204	174	165	142	2.1	2.1	2.2	2.2	2.0	2.0	1.8
147	Diseases of joints‡	120	26	27	15	16	20	16	.2	.3	.3	.2	.2	.2	.2
148	Amputations	6	——	1	——	——	3	2	†	——	†	——	——	†	†
149	Other diseases of organs of locomotion	31	10	4	10	2	3	2	.1	.1	†	.1	†	†	†
	MALFORMATIONS	320	69	70	60	45	52	24	.6	.7	.7	.6	.5	.6	.3
150	Congenital malformations	320	69	70	60	45	52	24	.6	.7	.7	.6	.5	.6	.3
	OLD AGE	3480	495	545	569	617	616	638	6.5	4.9	5.6	6.2	7.1	7.5	8.2
154	Senility	3480	495	545	569	617	616	638	6.5	4.9	5.6	6.2	7.1	7.5	8.2
155 to 186	AFFECTIONS PRODUCED BY EXTERNAL CAUSES	50712	10131	8524	8245	8551	7636	7625	94.3	99.5	88.2	89.2	98.3	92.9	97.9
	Suicide (total)	6542	995	1178	1134	1178	1018	1039	12.2	9.8	12.2	12.3	13.5	12.4	13.3
155	By poison	2352	284	372	441	440	395	420	4.4	2.8	3.8	4.8	5.1	4.8	5.4
156	By asphyxia	1040	193	224	172	184	136	131	1.9	1.9	2.3	1.9	2.1	1.7	1.7
157	By hanging or strangulation	761	118	145	138	127	115	118	1.4	1.2	1.5	1.5	1.5	1.4	1.5
158	By drowning	316	43	69	49	57	48	50	.6	.4	.7	.5	.7	.6	.6
159	By firearms	1519	252	272	253	273	239	230	2.8	2.5	2.8	2.7	3.1	2.9	3.0
160	By cutting or piercing instruments	346	64	60	53	63	50	56	.6	.6	.6	.6	.7	.6	.7

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* Tuberculosis excepted.

† Less than .05 per 100,000 exposed.

‡ Tuberculosis and rheumatism excepted.

Int. List No.	Cause of Death.	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
161	By jumping from high places	107	27	21	17	18	12	12	.2	.3	.2	.2	.2	.1	.2
162	By crushing.	33	5	3	3	4	9	9	.1	†	†	†	†	.1	.1
163	Other suicides.	68	9	12	8	12	14	13	.1	.1	.1	.1	.1	.2	.2
	Accidents, all forms, and unspecified violence*.	40417	8430	6677	6465	6750	6067	6028	75.1	82.8	69.1	69.9	77.6	73.8	77.4
164	Poisoning by food.	622	117	80	110	112	108	95	1.2	1.1	.8	1.2	1.3	1.3	1.2
165	Other acute poisonings.	1144	167	189	244	187	186	171	2.1	1.6	2.0	2.6	2.2	2.3	2.2
166	Conflagration.	576	85	85	116	101	89	100	1.1	.8	.9	1.3	1.2	1.1	1.3
167	Burns (conflagration excepted).	4714	891	827	778	787	749	682	8.8	8.8	8.6	8.4	9.0	9.1	8.8
168	Absorption of deleterious gases.	1431	297	224	265	214	249	182	2.7	2.9	2.3	2.9	2.5	3.0	2.3
169	Accidental drowning.	5757	987	1154	926	1056	838	796	10.7	9.7	11.9	10.0	12.1	10.2	10.2
170	Traumatism by firearms. . . .	1029	191	163	182	195	162	136	1.9	1.9	1.7	2.0	2.2	2.0	1.7
171	Traumatism by cutting or piercing instruments.	93	23	18	18	17	10	7	.2	.2	.2	.2	.2	.1	.1
172	Traumatism by fall.	6917	1335	1152	1164	1193	1047	1026	12.9	13.1	11.9	12.6	13.7	12.7	13.2
A173	Traumatism in mines.	612	98	91	105	107	107	104	1.1	1.0	.9	1.1	1.2	1.3	1.3
B173	Traumatism in quarries. . . .	48	7	3	11	7	12	8	.1	.1	†	.1	.1	.1	.1
174	Traumatism by machines . .	905	173	136	140	176	136	144	1.7	1.7	1.4	1.5	2.0	1.7	1.8
175	Traumatism by other crushing:														
A175	Railroad accidents and injuries.	4485	799	714	690	783	758	741	8.3	7.9	7.4	7.5	9.0	9.2	9.5
B175	Street car accidents and injuries.	1600	262	209	248	310	288	283	3.0	2.6	2.2	2.7	3.6	3.5	3.6
C175	Automobile accidents and injuries.	2507	756	524	444	360	245	178	4.7	7.4	5.4	4.8	4.1	3.0	2.3

* Includes war deaths (1,149).

† Less than .05 per 100,000 exposed.

TABLE 177 (*Continued*).

NUMBER OF DEATHS AND DEATH RATES PER 100,000 EXPOSED, FOR THE SIX-YEAR PERIOD 1911 TO 1916 AND FOR EACH YEAR OF THE PERIOD. CLASSIFIED ACCORDING TO THE DETAILED INTERNATIONAL LIST OF CAUSES OF DEATH.

Experience of the Metropolitan Life Insurance Company, Industrial Department.

Int. List No.	Cause of Death.	Number of Deaths.							Death Rates per 100,000 Persons Exposed.						
		1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.	1911 to 1916.	1916.	1915.	1914.	1913.	1912.	1911.
D175	Injuries by other vehicles	1658	288	286	267	299	279	239	3.1	2.8	3.0	2.9	3.4	3.4	3.1
E175	Landslide; other crushing	381	57	53	72	71	64	64	.7	.6	.5	.8	.8	.8	.8
176	Injuries by animals........	233	34	39	35	49	32	44	.4	.3	.4	.4	.6	.4	.6
177	Starvation...............	16	3	3	3	5	1	1	†	†	†	†	.1	†	†
178	Excessive cold...........	217	56	34	45	26	40	16	.4	.6	.4	.5	.3	.5	.2
179	Effects of heat...........	1247	261	66	90	171	139	520	2.3	2.6	.7	1.0	2.0	1.7	6.7
180	Lightning................	96	21	8	17	20	15	15	.2	.2	.1	.2	.2	.2	.2
181	Electricity (lightning excepted)...............	452	100	66	69	85	72	60	.8	1.0	.7	.7	1.0	.9	.8
185	Fractures (cause not specified)..................	806	121	140	138	109	163	135	1.5	1.2	1.4	1.5	1.3	2.0	1.7
186	Other external violence*....	2871	1301	413	288	310	278	281	5.3	12.8	4.3	3.1	3.6	3.4	3.6
	War deaths................	1149	976	173	—	—	—	—	2.1	9.6	1.8	—	—	—	—
	Homicide (total)............	3753	706	669	646	623	551	558	7.0	6.9	6.9	7.0	7.2	6.7	7.2
182	By firearms..............	2435	468	437	415	397	361	357	4.5	4.6	4.5	4.5	4.6	4.4	4.6
183	By cutting or piercing instruments..............	616	108	117	110	98	87	96	1.1	1.1	1.2	1.2	1.1	1.1	1.2
184	By other means..........	702	130	115	121	128	103	105	1.3	1.3	1.2	1.3	1.5	1.3	1.3
187 to 189	ILL-DEFINED DISEASES...	5448	804	1186	783	688	899	1088	10.1	7.9	12.3	8.5	7.9	10.9	14.0
187	Ill-defined organic disease....	261	31	23	34	45	64	64	.5	.3	.2	.4	.5	.8	.8
188	Sudden death...............	131	16	24	21	22	28	20	.2	.2	.2	.2	.3	.3	.3
189	Cause of death not specified or ill-defined.............	5056	757	1139	728	621	807	1004	9.4	7.4	11.8	7.9	7.1	9.8	12.9

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* Includes war deaths (1,149).

† Less than .05 per 100,000 exposed.

APPENDIX C.

EFFECT OF SYSTEM OF INQUIRY TO PHYSICIANS UPON DEATH RATES OF PRINCIPAL DISEASES AND CONDITIONS.

There are two general sources of error in the statistics of causes of death. The first source is the inherent inaccuracy and uncertainty of the diagnoses in a fairly significant proportion of the deaths certified. This element of defect in the statistics has been found upon recent inquiry, however, not to assume as much importance for the chief diseases and conditions as was at one time thought to be the case. Some committee work on behalf of the American Public Health Association by a group of pathologists, clinicians and statistical workers, has shown that the statistics of the causes of death represented in contemporary American registration practice are, for the most part, reliable for the practical purposes of public health work, and that they are worth the time, effort and expense required for the proper collection, tabulation and publication of the same.* This conclusion, based upon the deliberations of a representative committee, should go far to offset the suspicions and the doubts as to the accuracy of the statistics of certified causes of death which have appeared in recent vital statistical literature.

The second important source of error in the statistics of causes of death arises from the failure of certifying physicians to report *all* the morbid conditions known to them and which had any bearing upon the cause of death. Physicians often report only conditions such as "acute nephritis," "peritonitis," "septicemia" and other merely terminal incidents in the course of the last illness. This practice is perhaps excusable in view of the fact that the terminal condition is uppermost in the physician's mind, probably because it required the largest part of the physician's effort on behalf of his patient. These incomplete statements of causes of death account for a quite significant proportion of the total amount

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* See reprints 363 and 440, from Reports of the United States Public Health Service, 1917 and 1918. "The Accuracy of Certified Causes of Death and its Relation to Mortality Statistics and the International List."

TABLE 178.

EFFECT OF SYSTEM OF INQUIRY TO PHYSICIANS UPON DEATH RATES OF IMPORTANT DISEASES AND CONDITIONS.

Number of Deaths before and after Inquiry and Percentage Change in Death rate.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Int'l List Number.	Disease or Condition.	Number of Deaths.		Percentage, Deaths After of Deaths Before Inquiry.
		Before Inquiry.	After Inquiry.	
185	Fractures (cause not specified)	2280	806	35.4
66	Paralysis without specified cause	5052	2773	54.9
117	Simple peritonitis—nonpuerperal	1725	1013	58.7
67	General paralysis of the insane	3341	2224	66.6
B61	Simple meningitis	6010	4171	69.4
46	Other tumors (tumors of the female genital organs excepted)	402	293	72.9
62	Locomotor ataxia	1091	797	73.1
119	Acute nephritis	6500	5120	78.8
186	Other external violence (excl. war deaths)	2148	1722	80.2
94	Pulmonary congestion, pulmonary apoplexy	1082	939	86.8
20	Purulent infection and septicemia	1239	1083	87.4
45	Cancer and other malignant tumors of other organs or of organs not specified	5800	5279	91.0
92	Pneumonia (lobar and undefined)	45084	41707	92.5
120	Bright's disease	52260	52067	99.6
28	Tuberculosis of the lungs	93351	93526	100.2
9	Diphtheria and croup	13052	13089	100.3
156–163	Suicides (except suicide by poison)	6518	6542	100.4
29, 32–35	Other forms of tuberculosis	8981	9035	100.6
40	Cancer and other malignant tumors of the stomach	13957	14153	101.4
1	Typhoid fever	8882	9011	101.5
155	Suicide by poison	2310	2352	101.8
39	Cancer and other malignant tumors of the buccal cavity	1324	1353	102.2
81	Diseases of the arteries, atheroma, aneurism, etc	8899	9142	102.7
8	Whooping cough	2995	3075	102.7
7	Scarlet fever	4505	4638	103.0
31	Abdominal tuberculosis	3054	3155	103.3
41	Cancer and other malignant tumors of the peritoneum, intestines, rectum	4338	4482	103.3
6	Measles	4619	4776	103.4
108	Appendicitis and typhlitis	6118	6345	103.7
42	Cancer and other malignant tumors of the female genital organs	7588	7882	103.9
182	Homicide by firearms	2334	2435	104.3
43	Cancer and other malignant tumors of the breast	3418	3579	104.7
44	Cancer and other malignant tumors of the skin	894	938	104.9
64	Cerebral hemorrhage, apoplexy	34443	36638	106.4
183–184	Homicide (except homicide by firearms)	1237	1318	106.5

TABLE 178 (*Continued*).

Int'l List Number.	Disease or Condition.	Number of Deaths.		Percentage, Deaths After of Deaths Before Inquiry.
		Before Inquiry.	After Inquiry.	
91	Bronchopneumonia	15126	16224	107.3
B63	Other diseases of the spinal cord	1945	2160	111.1
10	Influenza	7247	8056	111.2
30	Tuberculous meningitis	4129	4647	112.5
51	Exophthalmic goitre	629	743	118.1
56	Alcoholism (acute or chronic)	2124	2555	120.3
172	Traumatism by fall	5558	6917	124.4
37	Syphilis	2345	4659	198.7
38	Gonococcus infection	83	200	241.0
A61	Cerebrospinal fever	290	823	283.8

of error in mortality statistics of the several diseases and conditions. The remedy for the first cause of error lies largely with the forces of medical education and diagnostic progress. The amount of absolute error due to the second important element of incomplete statement can be quite readily controlled by a system of correspondence with certifying physicians. By means of such a programme, each certification by a physician which is obviously or probably an understatement is subjected to scrutiny and becomes the occasion for a letter asking for all the facts as to diseases and conditions contributing to the death.

A plan of this kind was inaugurated at the beginning of the present mortality investigation and was carried out in principle, with necessary additions in the scope of the inquiries, throughout the entire six-year period. In Table 178 on pages 378 and 379, we show the effect of this system of correspondence upon the death rates of the more important diseases and conditions represented in this experience.

From the foregoing tabulation, it will be seen that as a result of correspondence with physicians the number of deaths certified as due to "fractures" (cause not specified) was reduced from 2,280 before inquiry to 806 after inquiry, or a reduction of 64.6 per cent. Another equally unsatisfactory certification was "paralysis," without specified cause. The number of such registrations in our final tables was reduced from 5,052, the number which was originally reported by physicians, to 2,773, after inquiry, or a reduction of 45.1 per cent. Inspection of the table will show other important alterations in the death rates of certain causes of death, the reduction being due solely to the persistent scrutiny of death certificates for incomplete statements, and the subsequent effort to secure complete and satisfactory reports from the physicians. A number of causes of death such as Bright's disease, tuberculosis of the lungs, diphtheria and croup, cancer of the stomach, and typhoid fever were affected, so far as their death rates were concerned, only to a very limited extent by this system of inquiry. Certain other causes of death such as whooping cough, scarlet fever and cancer of the peritoneum, intestines and rectum, which one might expect to be affected by masked returns of "broncho-pneumonia," "acute nephritis" and "peritonitis," respectively, show somewhat greater percentages of alteration in the recorded death rates. Cerebral hemorrhage and apoplexy, influenza, alcoholism, traumatism by fall, syphilis, gonococcus infection and cerebrospinal fever were quite emphatically influenced in their death rates by this programme of correspondence with certifying physicians.

The table on pages 381 to 384 shows what disposition was made of certain of the terms originally certified under obviously incomplete statements.

Thus, out of 295 "purulent infection and septicemia," replies received, most of which were originally returned as "septicemia," 76 cases or 25.8 per cent. were finally classified in our statistics as "puerperal septicemia." Cancer cases, where the organ or part was not specified by the physician, in 223 cases, or 25.3 per cent., out of an original total of 883 replies, were subsequently registered as "cancer of the female genital organs," and 126 cases, or 14.3 per cent., as "cancer of the breast."

Returns of "meningitis" were found to have been due to tuberculous meningitis in 17.1 per cent. of the cases and to cerebrospinal fever in 19.1 per cent. of the total number of replies received. Terminal cardiac states such as "acute cardiac dilatation" and "cardiac insufficiency" were found to have been pneumonia cases in 11.9 per cent. of the replies received. "Peritonitis" without further definition was finally registered as "appendicitis" in 17.3 per cent. of the cases and as "puerperal septicemia" in 14 per cent.

The statistics of accidental, homicidal and suicidal violence were affected in an important degree by the clearing up process applied to cases which were simply certified as "fractures." Out of 1,637 fracture cases, 1,011, or 61.8 per cent. of the total number, were

TABLE 179.

NUMBER OF DEATHS WHERE THE CAUSES OF DEATH WERE ORIGINALLY SPECIFIED IN ILL-DEFINED TERMS, SHOWING ALSO THE NUMBER AND PERCENTAGE OF SUCH DEATHS DEFINITELY CERTIFIED AFTER INQUIRY TO PHYSICIANS.

Experience of Metropolitan Life Insurance Company. Industrial Department. 1911 to 1916.

Ill-defined Term Reported Before Inquiry to Physician.	Cause of Death Ascertained by Inquiry to Physician.	Changes in Statement of Cause of Death.	
		Number.	Percentage
Purulent infection and septicemia Total replies—295 *Unchanged* by inquiry: 88 or 29.8 percent.	Total changes from "purulent infection and septicemia" to cause of death specified below	**207**	**70.2**
	"Other diseases of the uterus"	8	2.7
	Puerperal septicemia	76	25.8
	Acute abscess	9	3.1
	Other titles	114	38.6
Cancer and other malignant tumors of other organs, or of organs not specified Total replies—883 *Unchanged* by inquiry: 246 or 27.9 percent.	Total changes from "cancer..., organs not specified" to cause of death specified below	**637**	**72.1**
	Cancer...of the buccal cavity	27	3.1
	Cancer...of the stomach	113	12.8
	Cancer...of the peritoneum, intestines, rectum	100	11.3
	Cancer...of the female genital organs	223	25.3
	Cancer...of the breast	126	14.3
	Cancer...of the skin	42	4.8
	Other titles	6	.7
Meningitis Total replies—2560 *Unchanged* by inquiry: 701 or 27.4 percent.	Total changes from "meningitis" to cause of death specified below	**1859**	**72.6**
	Tuberculous meningitis	439	17.1
	Cerebrospinal fever	489	19.1
	Pneumonia—lobar and undefined	108	4.2
	Diarrhea and enteritis—2 years and over	94	3.7
	Other titles	729	28.5
Locomotor ataxia Total replies—596 *Unchanged* by inquiry: 294 or 49.3 percent.	Total changes from "locomotor ataxia" to cause of death specified below	**302**	**50.7**
	Syphilis	282	47.3
	Other titles	20	3.4
Paralysis without specified cause Total replies—2598 *Unchanged* by inquiry: 302 or 11.6 percent.	Total changes from "paralysis without specified cause" to cause of death specified below	**2296**	**88.4**
	"Other diseases of the spinal cord"	322	12.4
	Cerebral hemorrhage, apoplexy	1613	62.1
	General paralysis of the insane	149	5.7
	Other titles	212	8.2

TABLE 179 (*Continued*).

Ill-defined Term Reported Before Inquiry to Physician.	Cause of Death Ascertained by Inquiry to Physician.	Changes in Statement of Cause of Death.	
		Number.	Percentage.
General paralysis of the insane Total replies—2076 *Unchanged* by inquiry: 761 or 36.7 percent.	Total changes from "general paralysis of the insane" to cause of death specified below	**1315**	**63.3**
	Syphilis	1257	60.5
	Other titles	58	2.8
Organic diseases of the heart* Total replies—1175 *Unchanged* by inquiry: 697 or 59.3 percent.	Total changes from "organic diseases of the heart" to cause of death specified below	**478**	**40.7**
	Cerebral hemorrhage, apoplexy	86	7.3
	Pneumonia—lobar and undefined	140	11.9
	Other titles	252	21.4
Diseases of the arteries, atheroma, aneurism, etc.† Total replies—953 *Unchanged* by inquiry: 493 or 51.7 percent.	Total changes from "diseases of arteries, etc." to cause of death specified below	**460**	**48.3**
	Syphilis	175	18.4
	Cerebral hemorrhage, apoplexy	172	18.0
	Other titles	113	11.9
Pneumonia Total replies—5493 *Unchanged* by inquiry: 1595 or 29.0 percent.	Total changes from "pneumonia" to cause of death specified below	**3898**	**71.0**
	Influenza	529	9.6
	Bronchopneumonia	1076	19.6
	Lobar pneumonia	1692	30.8
	Other titles	601	10.9
Pulmonary congestion, pulmonary apoplexy Total replies—245 *Unchanged* by inquiry: 84 or 34.3 percent.	Total changes from "pulmonary congestion, pulmonary apoplexy" to cause of death specified below	**161**	**65.7**
	Organic diseases of the heart	32	13.1
	Chronic bronchitis	8	3.3
	Pneumonia—lobar and undefined	16	6.5
	Bright's disease	11	4.5
	Other titles	94	38.4
Peritonitis — non-puerperal Total replies—901 *Unchanged* by inquiry: 179 or 19.9 percent.	Total changes from "peritonitis" to cause of death specified below	**722**	**80.1**
	Abdominal tuberculosis	69	7.7
	Diarrhea and enteritis—2 years and over	33	3.7
	Appendicitis and typhlitis	156	17.3
	Salpingitis and other diseases of the female genital organs	76	8.4
	Puerperal septicemia	126	14.0
	Other titles	262	29.1

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* Most of the terms included under the title "organic diseases of the heart" are fairly definite. However, certain expressions such as "acute cardiac dilatation" and "cardiac insufficiency" are often reported when they are only terminal symptoms of other diseases. It is these expressions which are covered by our inquiry.

† Practically all of the inquiries related to reports of "aneurism."

TABLE 179 (*Continued*).

Ill-defined Term Reported Before Inquiry to Physician.	Cause of Death Ascertained by Inquiry to Physician.	Changes in Statement of Cause of Death.	
		Number.	Percentage.
Acute nephritis Total replies—3271 *Unchanged* by inquiry: 1852 or 56.6 percent.	Total changes from "acute nephritis" to cause of death specified below	**1419**	**43.4**
	Scarlet fever	95	2.9
	Influenza	156	4.8
	Alcoholism (acute or chronic)	341	10.4
	Bright's disease	118	3.6
	Other titles	709	21.7
"Other diseases of the uterus" Total replies—280 *Unchanged* by inquiry: 85 or 30.4 percent.	Total changes from "other diseases of the uterus" to cause of death specified below	**195**	**69.6**
	Gonococcus infection	23	8.2
	Cancer and other malignant tumors of the female genital organs	12	4.3
	Uterine tumor (noncancerous)	25	8.9
	Cysts and other tumors of the ovary	6	2.1
	Salpingitis and other diseases of the female genital organs	38	13.6
	Puerperal septicemia	53	18.9
	Other titles	38	13.6
Traumatism by firearms Total replies—157 *Unchanged* by inquiry: 35 or 22.3 percent.	Total changes from traumatism by firearms to cause of death specified below	**122**	**77.7**
	Suicide by firearms	9	5.7
	Homicide by firearms	110	70.1
	Other titles	3	1.9
Fractures (cause not specified) Total replies—1637 *Unchanged* by inquiry: 151 or 9.2 percent.	Total changes from "fractures (cause not specified)" to cause of death specified below	**1486**	**90.8**
	Traumatism by fall	1011	61.8
	Traumatism by crushing—electric railway	53	3.2
	Traumatism by crushing—steam railway	44	2.7
	Traumatism by crushing—automobiles	61	3.7
	Traumatism by crushing—other vehicles	89	5.4
	Traumatism by other means	60	3.7
	Other titles	168	10.3
"Other external violence" Total replies—708 *Unchanged* by inquiry: 132 or 18.6 percent.	Total changes from "other external violence" to cause of death specified below	**576**	**81.4**
	Purulent infection and septicemia	22	3.1
	Traumatism by fall	218	30.8
	Traumatism by machines	41	5.8
	Traumatism by crushing—steam railway	43	6.1
	Traumatism by crushing—electric railway	21	3.0
	Traumatism by crushing—automobiles	26	3.7
	Traumatism by crushing—other vehicles	58	8.2
	Other titles	147	20.8

TABLE 179 (*Continued*).

Ill-defined Term Reported Before Inquiry to Physician.	Cause of Death Ascertained by Inquiry to Physician.	Changes in Statement of Cause of Death.	
		Number.	Percentage.
Ill-defined diseases Total replies—598 *Unchanged* by inquiry: 176 or 29.4 percent.	Total changes from "ill-defined diseases" to cause of death specified below	**422**	**70.6**
	Malaria	15	2.5
	Tuberculosis of the lungs	22	3.7
	Organic diseases of the heart	107	17.9
	Bright's disease	27	4.5
	Other titles	251	42.0

identified as deaths due to falling; 3.2 per cent. were caused by electric railway accidents, 2.7 per cent. by steam railway accidents, 3.7 per cent. by automobile accidents and 5.4 per cent. by other vehicular accidents. "Gunshot wound," in 157 replies, was found to have been homicide by firearms in 110 cases, or 70.1 per cent., and suicide by firearms in 9 cases, or 5.7 per cent. Original certifications of "injury," "violent death," and other ill defined terms for violence classified under Title 186 of the International List, were found to have been made for falls in 30.8 per cent. of the cases; in machinery accidents in 5.8 per cent.; in steam railway accidents in 6.1 per cent. of the original number of returns.

From this brief review of an extensive programme for improving the validity of the statistics of the causes of death shown in this present report, it will be seen that incomplete and understatement of the morbid conditions contributing to death is highly significant to students of the medical statistics of mortality. It is evident that some allowance must be made in all published statistics of mortality from causes of death, for this factor of possible under and incomplete certification of diseases and conditions. The foregoing tables and the appended text will show in a measure the extent of this specialized problem in medical statistics. It is hoped that the value of a systematic programme of inquiry to physicians in cases of doubtful certification has been established by the foregoing display of the facts for the basic material of this report. They supplement the conclusions published in recent Census Bureau mortality reports under the caption of "Accuracy of Statistics of Causes of Death."

APPENDIX D.

STANDARDIZED, OR CORRECTED, DEATH RATES.

A judgment on the comparative healthfulness of two population or exposure groups, in terms of a single expression, is often necessary in the analysis of public health statistics. For instance, we may wish to compare, in the aggregate, white males of the insurance experience with males of the Registration Area experience. No direct comparison of the death rates for the total, ages one and over, is valid, however, without proper allowance for differences in the age composition of the two groups. On page 23 we gave a comparison of the death rates of the insurance and population groups, and showed that for all ages one and over, insured white males had a crude mortality rate 95.2 per cent. of the rate among males in the general population, and that insured white females registered a death rate 93.9 per cent. of the rates for females in the population of the expanding Registration Area of the United States. *Apparently,* there was a more favorable balance of mortality for the group of insured wage earners. But inspection of the table on page 5 shows that the average age of the insured group is much lower than that of the population exposure. A considerable bulk of the insurance white male experience consists of lives under twenty years of age (50.3 per cent.), as compared with 36.2 per cent. in the population experience. These differences in age constitution account for the apparently more favorable ratio of mortality in the total white male and white female insured groups.

A convenient means for eliminating the influence of variable age constitution is available. The "specific death rates," or death rates relating to specific sex and age classes in the two groups to be compared, can be multiplied into an assumed "standard population" by sex and age to produce an "expected" number of deaths. For this purpose we chose the age groups (for ages one and over) of the "standard million of population, England and Wales, 1901," and by multiplying the sex and age death rates of the insurance and population experiences, respectively, into the numbers in each of the corresponding sex and age classes of the "standard" or "norm" population, we produced for each experience and sex class, an "expected total number of deaths." The ratio of the expected number of deaths based upon the rates for insured white males to the expected number of deaths for population males, is an accurate measure of the relative healthfulness of the two groups, so far as we may determine this fact from the mortality statistics of the two groups. A tabular display of the results of this correction process is given below:

TABLE 180.

EXPECTED NUMBER OF DEATHS, AGES ONE AND OVER, IN "STANDARD MILLION OF POPULATION IN ENGLAND AND WALES, 1901" ACCORDING TO SPECIFIC DEATH RATES OF (*a*) METROPOLITAN INDUSTRIAL WHITE EXPERIENCE, 1911 TO 1916 AND (*b*) EXPANDING REGISTRATION AREA EXPERIENCE, 1910 TO 1915, BY SEX.

Sex.	Expected Number of Deaths in "Standard Population," According to Specific Death Rates in :		Percentage, M. L. I. Co. of Reg. Area Expected Deaths.
	M. L. I. Co. White Experience, 1911 to 1916.	Reg. Area (U. S.) Experience, 1910 to 1915.	
Males....................	7,107	5,561	127.8
Females..................	6,264	5,602	111.8

From the foregoing table we may conclude that the total mortality of insured white male wage earners is in reality 28 per cent. higher than mortality among males in the general population and that the group of insured white females shows an excess of 12 per cent. in mortality.

If the numbers of expected deaths in the foregoing table are divided by the total corresponding "standard population" at ages one and over the following "corrected" death rates are produced. A comparison with the crude rates is shown in the table on page 387, together with the standardization or correction factor.

In other words, the process of correction produces an increase of 27.7 per cent. in the death rate for insured white males, of 19.5 per cent. in the death rate of insured white females, a decrease of 4.8 per cent., and an increase of .3 per cent. in the death rates of males and females, respectively, in the general population.

TABLE 181.

CRUDE AND STANDARDIZED DEATH RATES PER 1,000, ALL CAUSES OF DEATH, COMPARED.

Standardization factor: (Ratio of Standardized to Crude Rate).

Experience Group; Sex.	Crude Rate.	Standardized Rate.	Factor.
Metropolitan Ind. White Experience, 1911 to 1916.			
Males	11.82	15.09	1.277
Females	10.40	12.43	1.195
Registration Area Experience, 1910 to 1915.			
Males	12.41	11.81	.952
Females	11.08	11.11	1.003

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